

The Only Weekly Mining Paper in the Union and Rhodesia.

THE
South African

MINING JOURNAL

WITH WHICH IS INCORPORATED

The South African Mines, Commerce & Industries

ESTABLISHED 1891

PUBLISHED EVERY SATURDAY

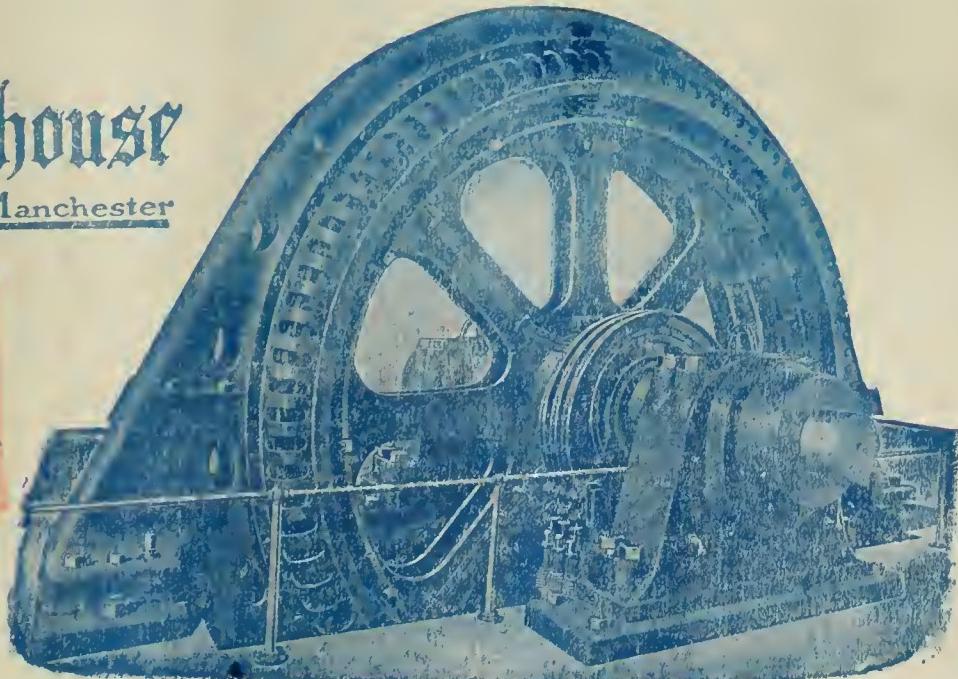
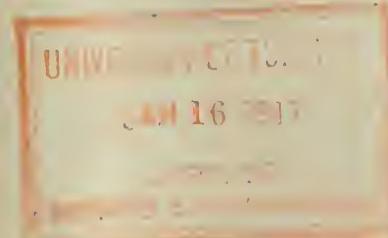
VOL. XXVI., PART I. No. 1711.] THE SOUTH AFRICAN MINING JOURNAL. DEC. 2, 1916. [WEEKLY, PRICE 8D.

LARGE MOTORS
for mining purposes

When a motor has to perform the arduous duties incident to mining, it is of great importance that it should be of thoroughly safe design and sound manufacture.

Westinghouse motors are running under most adverse conditions all over the world and are giving entire satisfaction.

Westinghouse
Manchester



The British Westinghouse Electric and Mfg. Co., Limited, Consolidated Bldgs., Johannesburg,
or
Thos. Barlow & Sons, P.O. Box 178, Durban, Natal.



ROBERT HUDSON & SONS, LIMITED.

WORKS :—GILDERSOME FOUNDRY, Near LEEDS.

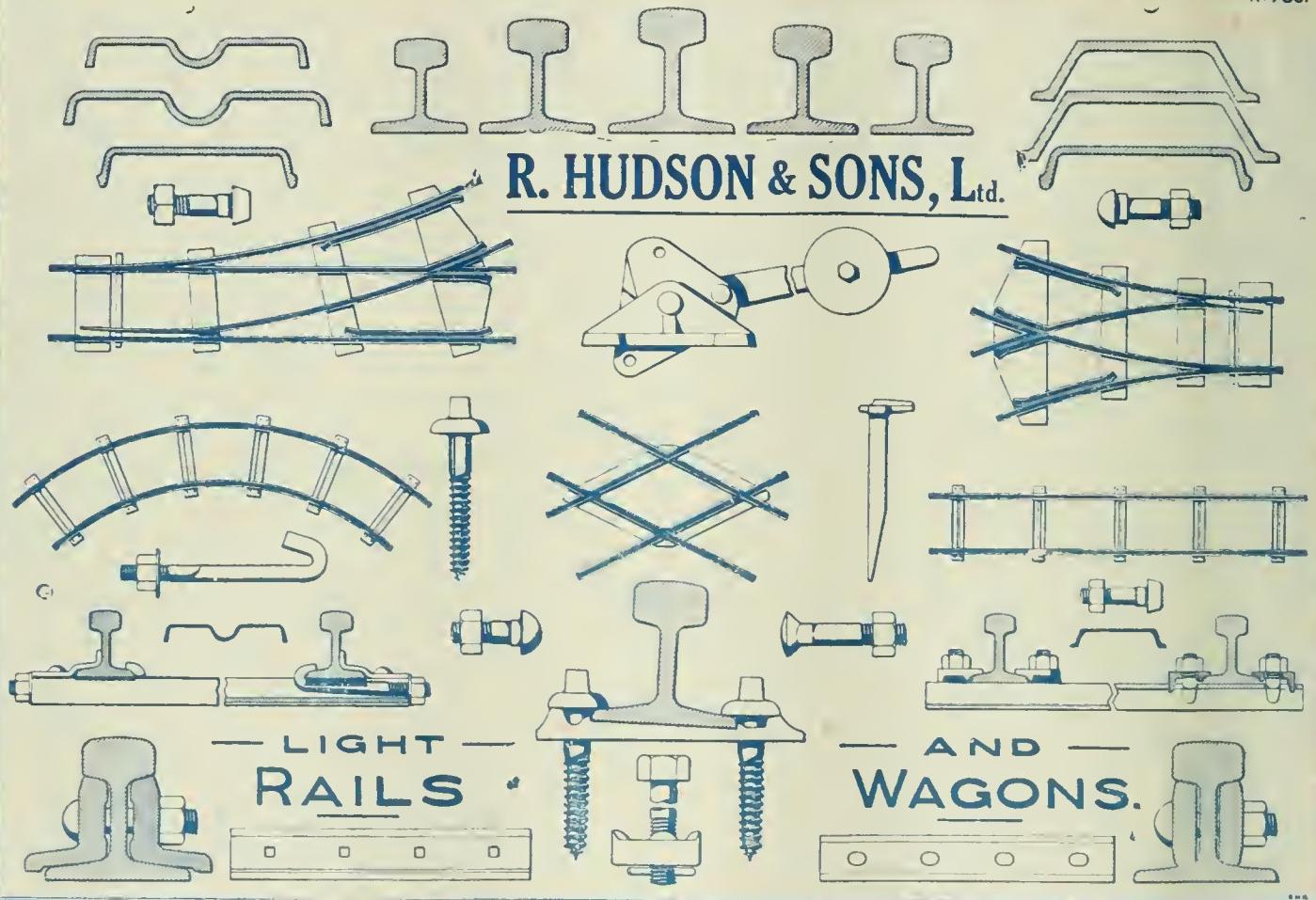
Phone 1731. **Box 5744. JOHANNESBURG.**

Tel. Add.:
"RALETRUX."

MANUFACTURERS OF

Tramway Material for Mines, Plantations, etc.

No 768.



LIGHT LOCOMOTIVES.

STEEL WAGONS FOR GOLD AND DIAMOND MINES.
HOPPER WAGONS FROM ONE TO FORTY TONS CAPACITY.

Steel Colliery Tubs.—Self-Oiling Wheels and Axles.—Bearings.

Wagons for Sugar Cane Plantations.

STEEL RAILS—ACCESSORIES—STEEL SLEEPERS

PRICES AND SPECIFICATIONS ON APPLICATION.

Large Stocks held at DURBAN, DELAGOA BAY, BEIRA, JOHANNESBURG, SALISBURY, etc.

Rhodesian Agents : P. PEECH & CO., Salisbury, Rhodesia.

HEAD OFFICE: 82, 83, 84, Cullinan Building, Johannesburg.

“INDUSTRY AS USUAL.”

LIST OF

Manufacturers & Agents belonging to the British Empire, her Allies & Friends.

HERBERT AINSWORTH,

Engineer and Merchant, 304-307, The Corner House, Johannesburg, South African Agent for Green's Patent Fuel Econo-misers, Keunicott Water Softeners, Wood's Colliery Plants and Winches, Hart's Lambeth Cotton Ropes, Canadian Carbide, "S" Brand.

EDGAR ALLEN & CO., LIMITED,

5, New Club Buildings, Loveday Street, Johannesburg. Miner's Drill Steel, High Speed Steel, Engineer's and Smith's Tool Steel, Tappet Key and Gib Steel, Manganese and Hard Steel Grizzley Bars, Tube Mill Liner Bars, Skip Wheels, Truck Wheels and Axles, Twist Drills, Shovels, Hammers, Shoes and Dies, Buffers, Railway and Tramway Points and Crossings, Ore Crushers, Tube Mills, Cement Kilns, etc.

BARTLE & CO., LTD.,

Loveday House, Johannesburg. 'Phones 3553-4. Sale Agents for Sanderson Bros. & Newbould, Ltd., Sheffield; F. Reddaway & Co., Ltd., Manchester; Henry Pooley & Son, Ltd., Birmingham; John Shaw, Ltd., Sheffield; J. W. Roberts, Ltd., Leeds; Gimson & Co., Ltd., Leicester; T. Lister & Co., Ltd., Brighouse; John Davis & Son, Ltd., Derby; Unity Safety Fuse Co., Scorrier; F. Bartle & Sons, Carn Brea; and many other well-known British Manufacturers.

BATES, MASON & CO., LTD.,

Machinery Merchants, Box 1895, 'Phone 2807, Government Square, Johannesburg, have large stocks of mining machinery, agricultural and building material, etc., new and second-hand, for sale cheap. Buyers of all classes of machinery and buildings for cash.

BRITISH GENERAL ELECTRIC CO., LTD.,

Corner Loveday and Anderson Streets, Johannesburg. Electrical Plant and Supplies of all descriptions 'Phones 4242-4243; Telegrams, "Current"; Box 2406. Branches at Capetown, Durban, Bulawayo, etc.

HUBERT DAVIES & CO.,

Electrical and Mechanical Engineers, for all kinds of Electrical Machinery and Supplies. Johannesburg, Durban, Cape town and Salisbury (Rhodesia).

The Denver Rock Drill & Machinery Co., Ltd.

'Phone 1426. Box No. 2367. 1-5, Royal Chambers, Johannesburg. "WAUGH" Air Feed Hammer Drills, for all classes of mining; DENVER Brand of Rubber Conveyor Belting; Rock Drill and Water Hoses, Red Sheet Packing, Grey Insertion; "DUXBAK" Waterproof Leather Belting and Waterproof Cement; "CLARK" Air Meters. Large Stocks always on hand.

FRASER & CHALMERS, LTD.,

Corner House, Johannesburg; also representing Holman Bros., T. and W. Smith, Ltd.; Tangyes, Ltd.; G. and J. Weir, Ltd.; and many other British agencies.

HADFIELDS LTD.

(Incorporated in England.)

46-47, Cullinan Buildings, 'Phone 5900, Johannesburg. Cast Steel Gyrating and Jaw Crushers and Crusher Spares, Wheels and Axles, Pedestals, Rollers, Pulleys and General Steel Castings.

HARVEY & RUSSELL, LTD.,

96, Frederick Street, Box 2043, Telephone 4004, Johannesburg; Power Transmission Machinery, Dewrance's Steam Fittings and White Metals, Machine Tools, "Righy" Steam Hammers, Steel Construction Work, "Vislok" Patent Lock Nuts.

HOSKEN & CO., WM.,

Mining Material Merchants, Hosken's Buildings, P.O. Box 667. 'Phones 4113-9. Telegrams: "Hosken," Johannesburg. Agents for "Hydromax" New Water Hammer Drills. The fastest rock drill in the world.

ROBERT HUDSON & SONS, LIMITED,

Works: Gildersome Foundry, near Leeds. 83-4, Cullinan Buildings, 'Phone No. 1731. Telegraphic Address: "Rale-trux." Manufacturers of all classes of Light Railway Material for Mining and Contractor use. Rails in all weights per yard. Switches and Crossings, Standard Trucks of various capacities kept in stock.

INGERSOLL-RAND CO.,

Exploration Building, Johannesburg. Air Compressors, Rock Drills, Hose, Steel, Pneumatic Tools, Cameron Pumps, Leyner Drill Sharpeners, Davis Calyx Coil Drills.

PHOENIX FOUNDRY,

Iron and Brass Founders, General Engineers and Blacksmiths. Office and Works: Hay Street, Ophirton. P.O. Box 3031, Johannesburg. 'Phone 1641. Sole Agents for Carntyne Steel Castings Co., Glasgow. Stocks of Tappets, Skip Wheels, Heads, etc. Casting Specialities: Pipe Fittings, White Iron Pump Spares and Tube Mill Liners.

REUNERT & LENZ, LTD.,

Consolidated Building (3rd Floor), Johannesburg; P.O. Box 92; Telephone No. 3061. Sole Agents for North British Locomotive Co., Ltd.; Leeds Forge Co., Ltd.; Babcock and Wilcox, Ltd.; Belliss and Morcom, Ltd.; Davidson and Co., Ltd.; Frank Pearn and Co., Ltd.; "Atlas Rock Drills," John Stephens and Son, Ltd.; E. and W. Lucas, Ltd.; Sir Joseph Jonas, Colver and Co., Ltd.; John Spencer and Sons, Ltd.; and many other high-class British Manufacturers.

SANDYCROFT, LIMITED,

Works: Chester, England, Offices, 63-64, Standard Bank Chambers, Telephone No. 360, P.O. Box No. 1976, Johannesburg. Suppliers of Stamp Battery Requisites of all descriptions, Belting, Winches, Ropes, etc.

FATTI'S S.A. MACARONI FACTORY,

Suppliers of Soup Macaroni to the Mines, etc. (for the Natives). This pleasing, nourishing and economical new food is much appreciated by Mine and Compound Managers, as they find in it an opportune change of the somewhat monotonous diet of the Mine Boys. Box 1139, 30-32, Jeppe Street, Johannesburg. 'Phone 962. (L. FATTI and Co., Ltd.)

S. SYKES & CO., LTD.

Southern Life Buildings, Johannesburg. Telephone No. 2190. P.O. Box 2303. Telegrams: "Psyche." Sole Agents for Robey & Co., Ltd.; Crossley Bros., Ltd.; E. R. & F. Turner, Ltd.; Worthington Pump Co., Ltd.; C. A. Parsons & Co., Ltd.; Crompton & Co., Ltd.; and Reyrolle & Co., Ltd.

E. W. TARRY & Co., Ltd., Austral Iron Works,

Corner of Anderson and End Streets, Box 1098. 'Phones 149 and 626, Johannesburg. Iron and Brass Founders and General Engineers. Machine Cut Gears in Raw Hide and any Metal a speciality, and in Cast Iron up to 18 feet diameter. Sole Manufacturers and Agents for Tregaskis Patent Drill Heating Furnace.

WADE & DORMAN, LTD.,

Box 2997; Telephone 1460, Johannesburg. Structural Steel Work of all kinds. Large Stocks of Joists, Channels, Angles, Tees, Plates, Chequered Plates, etc. Agents for British Steel Piling Co. Stockyard and Works: 217, Main Street.

C. F. WIENAND,

Commercial Exchange Buildings, Johannesburg; 'Phone 3. Sole Agent for Toledo Steels of all classes, Butterey Iron, Barwell's Bolts, Scott's Ropes, Mine Lubricants, Ltd., Stelasic Tyres. All highest quality.

PROFESSIONAL DIRECTORY.

LITTLEJOHN & WHITBY,
ASSEYERS TO THE
AFRICAN BANKING CORPORATION,
NATIONAL AND NATAL BANKS.

CONSULTING ANALYTICAL
CHEMISTS AND METALLURGISTS.

P.O. Box 849. 'Phone 1633.

Office and Laboratories:
IMMONDS STREET, JOHANNESBURG.

Assays and analyses of all Minerals, Drugs, Foods, Water, Milk, Oils, etc., undertaken.

Experiments conducted. Reports made as to the treatment of any class of Ore.

J. GOULDIE, C. & M.E., M.I.M.E.,
CONSULTING ENGINEER.

Late Manager to the De Beers and other Diamond Mines. 30 years practical experience in Diamond, Gold, Coal, and Metalliferous Mining in South Africa, and holder of Mine Manager's Certificate (First Class).

Mines and Mineral Propositions Inspected and Reported Upon.

Office: 62, Standard Bank Chambers, Commissioner St., JOHANNESBURG.

Phone 2225. Telegraphic Address: "Edloug, Johannesburg."

Code: Imperial Combination and A.B.C. (5th edition).

Reference: The National Bank of South Africa, Limited, here and in London.

PATENTS AND TRADE MARKS

D. M. KISCH & CO.,
(C. H. M. KISCH—A. L. SPOOR).

ESTABLISHED 1874.

Members Chartered Inst. of Patent Agents, London.

COLONIAL AND FOREIGN PATENT AGENTS.

The Firm undertake the Patenting of Inventions, and the Registration of Trade Marks throughout the world; the Preparation, Revision or Amendment of Specifications and Drawings; reporting on Validity and Infringements; obtaining copies of Specifications and Drawings of Patents granted; Searches through the Patent Office Records; the conduct of Oppositions, and all other matters relating to Patents and Trade Marks.

No. 16 to 19a, NATIONAL MUTUAL BUILDING,
Corner of Rissik and Market Streets.

P.O. Box 668. Telephone No. 774.

J. E. MILLS DAVIES,
CONSULTING MINING ENGINEER,

180, Stock Exchange Buildings, Johannesburg.

P.O. BOX 418. TEL. ADD.: "MINING JOURNAL." TELEPHONE 913

W. HOLMAN JAMES, M.I.E.(S.A.)
M.(S.A.)LEE.

CONSULTING ELECTRICAL & ELECTRO-CHEMICAL ENGINEER,

17, 18 & 27, National Bank Buildings,

P.O. Box 585. JOHANNESBURG. Telephone 5876.

G. A. WATSON, EXPERT COMMERCIAL
PHOTOGRAPHER,

17, Hosken's Buildings, Cor. Rissik & Fox Streets,
Box 667, JOHANNESBURG.

Photographs of all the Leading Mines on the Rand Enlargements a Specialty | Our Framing Department has all the latest Mouldings Machinery a Specialty.

Printing, Bookbinding, Account Books, Tracing Cloth, Transfer Paper, Drawing Paper, Ferro Prussiate, Ferro Gallic, Indian Inks, Rubber Stamps, Stationery of all descriptions, Draughtsman's and Surveyor's Requisites.

C. E. FOLKEY, Stationer & Printer.

Ask for a Quotation for Stationery or Printing.

7, MARSHALL SQUARE BLDGS., opposite main entrance Stock Exchange
TELEPHONE 2085.

NOTICE: To Mine Managers & Others

M. CHADWICK & CO., Scrap Metal and Rubber Buyers, are prepared to pay highest prices for Copper, Brass, Lead, Zinc, Cast Iron, or metal of any description. Lead, Zinc, White Metal in Ingots always on hand for sale at lowest prices. Write, send, or Telephone 5072, Box 2700, 55, Sauer Street. Prompt attention guaranteed. Distance no object.

When communicating with Advertisers
kindly mention the
SOUTH AFRICAN MINING JOURNAL.

Cable.
"McKECHNIE.
WIDNES."

McKECHNIE BROTHERS, LIMITED.

SMELTING WORKS: WIDNES, ENGLAND.
BIRMINGHAM, NEWCASTLE, MANCHESTER, LEEDS AND BRISTOL.

BUYERS OF

COMPLEX ORES

Which contain COPPER.

COPPER-TIN ORES COPPER-LEAD ORES. COPPER-ZINC ORES

Residues, Mattes, Concentrates, Precipitates.

Engineering Works and Foundries.

ESTABLISHED 1888.

Wright, Boag & Co.

ENGINEERS AND FOUNDERS.

Offices: Frederick Street.

Works: Marshall's & City and Suburban Townships.

Telephones:
1056 and 1057.

P.O. Box
545.

Tel. Add.:
"SWIVEL."

JOHANNESBURG.

Austral
Iron
Works.

ENGINEERS AND FOUNDERS.

Special Metal for
wearing plates for
Tube Mills and
Centrifugal Pumps.

Machine Cut Gears in Raw Hide or any Metal a
Specialty.

And in Cast Iron up to 18 feet diameter.

Sole Agents and Manufacturers of Tregaskis'
Drill Heating Furnace.

E. W. TARRY & Co., LTD.

Anderson and End Streets,

JOHANNESBURG.

'Phone 149. Box 1098. Tel. Add.: Austral."

JAMES SMITH,

Surface and
Underground.

Diamond Drilling
Contractor.

P.O. Box 3180, JOHANNESBURG.

P.O. Box 3960.

Telephone No. 877

W. H. BATTEN (Late BATTEN & EDGAR)

The RAND BOILER, TANK,
:: and IRON WORKS. ::

Trucks, Steel Cyanide Tanks, Chimneys, Cones, Skips, and all
Mining Plate Work a speciality.

Office and Works: Albert, Gold, Durban and
Nugget Streets, City and Suburban.

New Industries in South Africa.

THE VERDITE MINES yield Gold, Nickel, Greenstone,
French Chalk, Talc and Soapstone, from which are
produced:—

Talcum Powders, Boilermakers' and Engineers' Pencils (for
marking iron and steel), Crayons, the beautiful "Verdite" Greenstone for Building Decoration, Ornamental Work and
Jewellery.

The Greenstone is unique, is found in no other part of the
world, and there is no other Gold Mine in existence which
produces so many useful by-products.

From a small beginning and accidental discovery this is rapidly
growing to be one of the leading industries of South Africa.

Britannia Engineering Co.

LIMITED.

General and Mechanical Engineers.

IRON AND BRASS FOUNDERS.
BOILER AND GENERAL SMITHS.

Repairs and Renewals promptly and efficiently executed.
Sole Makers of the Hearn Patent Pendulum Pump.

201-3-5, Main Street and 220-2-4, Fox Street,
Box 1558. JOHANNESBURG. 'Phone 896.

The best "Reef Traveller" is the *South African Mining Journal*.

CANADIAN CARBIDE.

Why you should use "S" Brand Canadian Carbide.

- I. Because it is the Best Carbide.
- II. It is made in the British Empire.
- III. The price is no more than Foreign Carbide.



THEREFORE

BUY "S" BRAND CANADIAN CARBIDE.

SOLE AGENT:

HERBERT AINSWORTH,

3rd FLOOR, CORNER HOUSE, JOHANNESBURG.

TELEPHONE Nos. 356 & 1308.

Telegrams: "AINSCO."

P.O. Boxes 1553 & 1671.



"HYDROMAX"

New Water Hammer Drills to supersede Reciprocating Drills.

The "Hydromax" weighs 80lbs.

Suitable for Stoping, Raising and Driving.
It Drills 30% faster than any other drilling machine.

Low Air Consumption.

No Mine Manager can afford to neglect the economic merits of the

"HYDROMAX"

THE FASTEST ROCK DRILL IN THE WORLD.

We have exclusively manufactured drills for thirty-seven years and the "Hydromax" is our crowning effort.

THE CLIMAX ROCK DRILL & ENGINEERING WORKS, LTD.,
CARN BREA, CORNWALL.

WM. C. STEPHENS, Managing Director.

Agents—

WM. HOSKEN & CO.,
BOX 667, JOHANNESBURG.

Phones 4113, 9.

Telegrams: "HOSKEN," Johannesburg.

THE SOUTH AFRICAN
Mining Journal,

WITH WHICH IS INCORPORATED

South African Mines, Commerce and Industries.

ESTABLISHED 1891.

VOL. XXVI., PART I.] DECEMBER 2, 1916. [No. 1314.

HEAD OFFICE: 176-180, Stock Exchange Buildings, Fox Street (2nd Floor), Johannesburg, Union of South Africa.

Telephone 913. P.O. Boxes 963 and 418.

Cable and Telegraphic Address: "MINING JOURNAL."

AGENTS FOR GREAT BRITAIN: Argus South African Newspapers, Ltd., Byron House, 82-85, Fleet Street, London, E.C.

AMERICA: Gotham Advertising Co., 95, Liberty Street, New York.

ANNUAL SUBSCRIPTION RATES: Oversea, £2; Union of South Africa and Rhodesia, £1 10s.; Local Delivery (Town only), £1 6s.

Copies of this journal are obtainable at all Branches and Agencies of the Central News Agency, Ltd., at all News Agents and Railway Bookstalls throughout South Africa, and at the London Agency as above.

NOTICE.—The postage of this issue of the *S.A. Mining Journal* is: South Africa, 1d. All other parts, 2d.

CONTENTS.	PAGE
Notes and News	309
Topics of the Week:	
New Modder Progress and Prospects	311
A Plea for the Far East	311
Some Effects of War on Gold Mining	312
Industrial Peace	312
The New Power Station at Pigg's Peak	313
Prospects of the Shama Mine	314
Rhodesian Mining Conference Results	315
Tangible Results of the Safety Campaign	316
Latest Results from Neumann Mines	318
Correspondence and Discussion: "Kleinfonteins"; "Rand Klip and Cloverfield"	
The Week in the Sharemarket	319
The Week in the Mining Material and Engineering Trades	320
Rhodesian Section:	
Rhodesian Mineral Output	323
Twenty Years Ago	326
Industrial Section:	
The Coming of Industrialism	327
Company Meetings: Main Reef West, Consolidated Main Reef, New Modder, Nourse Mines, Southern Van Ryn, Johannesburg Board of Executors	329
Engineering Notes and News: Electrical System of the Rand Power Companies, with Special Reference to Methods of Operation and Experience—II.	335
The Question of Pulp Elevation	337

Notes and News

We had hoped to be able to print this week the names of the successful tenderers for the leases of **The Tenders for the Far East Areas.** Government in the Far East Rand. It is understood, however, that no announcement will be made before next week. The list of those who have put in tenders for one or both areas now includes The Johannesburg Consolidated Investment Co., Ltd., Brakpan Mines, Modder B., Rand Selection Corporation, Ltd., Sir George Albu on behalf of the Van Ryn Estates, and Sir J. B. Robinson.

* * * *

In view of the unsatisfactory results of working for the past several months, the Zaaiplaats **Zaaiplaats Crushing Operations Suspended.** Board has decided to temporarily suspend crushing operations as from the 1st December, and to utilise the remaining cash resources of the Company in developing existing ore bodies, and in generally prospecting the property, with a view to building up a reserve of ore, and thus placing the mine in a more satisfactory position.

* * * *

In a letter addressed to the Durban Town Council, Sir Wm. Hoy announces that the S.A.R. Administration has under consideration the **Electrification of S.A. Railways.** question of the electrification of certain sections of the railway system, and that in all probability consulting engineers will shortly be invited to visit South Africa to report upon the schemes drawn up.

* * * *

The secretary of the Rhodesia Chamber of Mines writes as follows:—The Rhodesia Chamber of **Mining Supplies for Rhodesia.** Mines has been advised by His Honour the Administrator that the board of directors of the British South Africa Company has arranged with the War Trade Department in London that all applications for permits for engineering supplies for the mining industry in Southern Rhodesia, of which the export from Great Britain is prohibited, will be certified either by the Rhodesia Chamber of Mines or the Salisbury Chamber of Mines, and forwarded through His Honour. In the case of large orders the names of the particular mines requiring supplies will have to be stated. As regards small quantities required in the ordinary course of working by the mines, and particularly by small workers, the Chambers of Mines will need to certify that the amounts asked for by merchants to meet such cases are proportionate to actual requirements.

* * * *

The secretaries of the Chamber of Mines have addressed a circular to the mines advising them **Transvaal Chamber of Mines.** that in consequence of the 10th of December being a Sunday, the gold output for the month of November will be declared on Saturday the 9th inst. Returns of operations are therefore expected from the mines not later than the 7th of December.

* * * *

Considerable interest has been aroused by the remarks made by Col. Raleigh Grey, M.L.C., the President of the Salisbury Chamber of Mines, in concluding his address at the opening of the Mining Conference as follows:—"We hear a great deal about the assistance we render by procuring gold and other commodities, but when we consider that our total annual production is less than one day's expenditure by Great Britain on the war, that argument, no matter how true it may have been in the early days of the war, can no longer be considered. What is our Government service, what are our railways, what is our industry, what is our convenience, compared to the preservation of the Empire, and the necessity for men? Besides none of these services

and industries will stop. Men who cannot go will be easily found to replace those who can. Let us combine, therefore, to encourage and assist men to go. Let us combine to help each other to replace them, and let us combine to guarantee them employment when they return. We shall then be doing all we can to assist the men, and they will be unable to say that they cannot go because their employers will not guarantee their re-employment."

* * * *

The official mining statistics for October give the coal output at 889,580 tons, value £243,871, a

Union Mining Returns for October. decrease on September of 5,434 tons. value £1,974. The Transvaal output

was 542,498 tons, a decrease of 5,855. Natal produced 274,874 tons, an increase of 1,697; the Free State 68,791 tons; and the Cape 3,117 tons, a decrease of 72 and 205 respectively. The Transvaal and Cape shipped 2,649 tons of copper, valued at £154,913; and the Transvaal shipped 294 tons of tin, valued at £22,174. The output of asbestos is returned at 783 tons, valued at £13,473, of which 708 tons are credited to the Cape. It is explained that the return includes outputs from January to September by certain producers who had not hitherto forwarded monthly returns in time. The whites employed in mining throughout the Union in October numbered 30,668, a decrease of 19; and coloured 283,608, an increase of 5,783; and it was the highest number for the year. The diamond output was returned at 235,335 carats, valued at £599,843.

* * * *

A luncheon was given by this new organisation, at the Waldorf Hotel, on Tuesday of last week,

British Empire Producers' Organisation. in honour of Mr. E. Saunders and Mr. H. E. B. Young, who are leaving Great Britain on behalf of the organisation as delegates to South Africa and Australia

respectively. The main object of the Organisation is to stimulate the industrial enterprise of the Empire during and after the war. In detail it hopes to promote and foster production, manufacture, and interchange in and between various parts of the Empire, to promote suitable duty and tariff arrangements, aiming at the establishment of economic inter-dependence in the Empire, to collect and circulate statistics and other information, and to take steps to improve the technical knowledge of those engaged in the producing and manufacturing industries. The Organisation has already joined forces with the British Electrical and Allied Manufacturers' Association, and has done much good work in connection with the sugar industry. It is intended ultimately to embrace all forms of production and manufacture, and negotiations are now proceeding with various associations representative of many branches of industry. Its policy will be to co-ordinate the efforts of such sectional industrial associations, leaving each to deal with its own affairs until the point where common action becomes necessary is reached. The Organisation has as patron the Right Hon. W. M. Hughes, Prime Minister of Australia, while on its list of vice-presidents many well-known names are to be found. At the luncheon the chair was taken by Sir Henry Birchenough. Mr. C. Sandbach Parker, chairman of the Organisation, read a letter from Mr. W. F. Massey, Prime Minister of New Zealand, in which the importance of a self-contained Empire was strongly urged. Mr. F. R. Davenport, chairman of the British Electrical and Allied Manufacturers' Association, urged employers and employed alike to discard many of their pre-war habits and customs, while Mr. J. A. Seddon, past-president of the Trades' Union Congress, spoke on the value of co-operation between capital and labour.

* * * *

The quarterly report of the Sub Nigel for the period to September 30 shows that the development

Sub Nigel Position. during the quarter and up to the 15th October has generally maintained the high average of the previous quarter. The

drive westwards on the 15th level in "C" shaft section met a fault and has been advanced beyond this fault. Beyond the fault 35 feet have been sampled showing an

average reef width of 12·6 inches giving an average value of 23·1 dwts. over a stoping width of 42 inches. From this it would appear that the chute is of greater lateral extent than was anticipated. On the 14th level drive eastwards in "D" shaft section a chute has been met with and driven on for 40 feet showing an average reef width of 9·5 inches and giving an average value of 21·9 dwts. over a stoping width of 42 inches. This chute does not appear to have been indicated on the level immediately above and has not yet been definitely correlated. The 14th level drive westwards in "E" shaft section has been advanced and sampled a distance of 155 feet showing an average reef width of 25·9 inches and an average value of 11·9 dwts. over a stoping width of 42 inches. Up to the 15th October the total continuous footage driven on this level in "E" shaft section was 320 feet, all of which has been sampled and shows an average reef width of 23·2 inches and an average value of 10·6 dwts. over a stoping width of 42 inches. Since the close of the quarter the manager has reported that the crosscut on the 11th level drive westwards in the "E" shaft section appears to have got through the large dyke and to have entered shale as was expected. The crosscut is being continued to intersect the reef which was located by means of a borehole and which it is hoped will be met with before the end of the current quarter. The report adds: "It will be noted that the reef upon which this company is working is in this report described as the Van Ryn Reef instead of as the Nigel Reef as heretofore, as it is accepted by our engineers that the reef in question correlates with the Van Ryn Reef as recognised in the large and well-known northern mines of the Far East Rand."

* * * *

It is notified that the Minister of Mines and Industries has been pleased to appoint the undermentioned gentlemen as members of a committee to inquire into and report upon:

Committee on Underground Contracts.

(a) The system of underground contracts in use in the Witwatersrand mines; (b) the question of abolishing such contracts, by statute or otherwise, or of substituting an amended system: Maleohn Fergusson (chairman), John Munro, Frank Gwynne Alfred Roberts, James Coward, and Nicolas Toomey, with Thomas Joseph Shannon as secretary.

* * * *

The Crown Mines correspondent of *The Reef* refers to two prize schemes inaugurated in connection

Two New Prize Schemes on the Mines. with ideas helping to improve underground work and organisation. At the Crown

Mines a prize or bonus of £100 is offered, underground employees below the rank of mine captains, head surveyors, or officials of equal rank being eligible to compete. There is a further scheme open to all the mines of the Central Mining—Rand Mines group, in which case the handsome bonus of £500 is offered for distribution amongst the senders of most deserving suggestions conditional upon their being of utility to more than one particular mine. Though the ideas need not be original, the application of them must be. The general manager of the Crown Mines will adjudicate on that mine's competition, while a committee of the group's consulting engineers and one of the managers of the Central Mining and Investment Corporation will decide on the others. Patented or patentable devices do not come within the scope of these two prize schemes.

* * * *

The board of the Globe and Phoenix Gold Mining Co., Ltd., has declared a first interim dividend of

Globe and Phoenix Prospects. 18. per share, less tax, in respect of the year 1916, payable 15th November to

the registered holders on the books at 27th October. The directors are glad to be able to make this distribution out of the available funds after the whole of the litigation expenses have been paid up to date and after making proper provision for the John Bull litigation reserve fund. The developments referred to by the Chairman at the annual meeting continue to be rich and of a most satisfactory nature.

The secretary of the East Rand Mining Estates, Ltd., writes to the London papers under date of November 2: "Statements have appeared in the press during the past week to the effect that a scheme for the amalgamation of this company's farm Grootvlei with certain other neighbouring properties is under consideration. I am instructed by my directors to state that, so far as Grootvlei is concerned, there is no truth in such report, which they desire to emphatically contradict. The extent of the farm Grootvlei is in itself sufficient to provide any area required to constitute a workable mining proposition, and there is no necessity for acquiring any additional area."

* * * * *

The report of the directors for the quarter ending 30th September, 1916, shows that the number of feet driven, sunk and risen, exclusive of stopes, was 5,565 feet. The footage sampled amounted to 2,661 feet, of which 1,349 feet proved to be payable, with the following exposures:—Main Reef Leader: Footage, 1,239; width, 21 inches; assay value, 22·9 dwts. South Reef: Footage, 110; width, 15 inches; assay value, 22·8 dwts. The working profit totalled £76,568, an increase of £9,439 compared with the previous quarter. The improvement was due to an increase of 3,400 tons in the quantity milled, and a reduction of 1s. per ton milled in working costs. Development operations were well maintained. The proportion of the unpayable development has increased somewhat, owing to the area immediately west of the main incline being of low grade. It is evident that an unpayable chute or patch exists. The width of it, measured along the strike, is approximately 1,000 feet; to what extent in depth it will continue it is impossible to say. The extreme western area, from approximately the development incline to the west boundary, is disclosing values of a highly satisfactory nature, and the whole area east of the main incline shaft to the eastern boundary is also very good. The capital expenditure on equipment for the quarter totalled £2,115. A provisional agreement has been made with the Government carrying the right to mine under an area of 38·33 claims known as the Wemmer Pan Bewaarplatsen and Water-rights. The consideration is £100,930, payable in ten annual instalments (property account has been increased by this amount).

* * * * *

Ferreira Deep, Ltd., notifies holders of share warrants that they will receive payment on or after November 4 of dividend No. 28 (16 $\frac{1}{4}$ per cent., i.e., 3s. 3d. per share), after surrender of Coupon No. 28, at the

London office, 1, London Wall Buildings, E.C., or to the Crédit Mobilier Français, 30 and 32, Rue Taitbout, Paris. Coupons belonging to holders resident in the United Kingdom will be subject to deduction of English income-tax at the rate of 1s. 5·54d. (say, 1s. 5 $\frac{1}{2}$ d.) in the £, being 5s. in the £ less relief of 1s. 5·8d. in the £ in respect of the present dividend of 3s. 3d. per share, and a further 1s. 5·8d. in the £ in respect of the previous half-year's dividend of 4s. 6d. per share. The above relief from income tax for the British income tax year ending April 5, 1917 (1s. 5·8d. in the £ for each dividend), has been authorised by the Commissioners of Inland Revenue in respect of profits tax, war levy, and income tax imposed on the profits (excluding British profits) of the company by the Government of the Union of South Africa. The Commissioners will not entertain claims by individual shareholders for: (i.) Relief already granted to the company on their behalf and passed on to them in the form of a reduced deduction, or (ii.) relief by reduction of the rate of income tax payable in respect of unearned income where the shareholder's total income does not exceed £2,000, to the extent to which such relief has already been allowed in effect by the reduced deduction mentioned. All coupons presented at the Crédit Mobilier Français, Paris, as well as any presented at the London office for account of holders resident in France, will be subject to a deduction of 1s. 3d. in the £ on account of French transfer duty and French income tax. Coupons must be left four clear days, and may be lodged any day (Saturdays excepted) between the hours of 11 and 2. The Transvaal Gold Mining Estates, Ltd., makes a similar notification in regard to its dividend No. 21 (7 $\frac{1}{2}$ per cent., or 1s. 6d. per share).

TOPICS OF THE WEEK.

NEW MODDER PROGRESS AND PROSPECTS.

SELDOM does it fall to the lot of a Rand chairman to present so rosy a picture of achieved results and assured prospects as Mr. Wallers was in a position to do at the New Modder meeting this week. This mine is, of course, not only one of the greatest on the Far East, but also one of the greatest on the whole Rand. It has, during its profit-distributing life of ten years, returned more than twice its issued capital in dividends, and its future promises far to surpass its past records. But for delays due to the war, the ambitious scheme for augmented production would be in full swing by the middle of 1917, and, thanks to the unceasing efforts of the directors and engineers responsible, the delay may not exceed six months. Compared with previous speeches from the Chair of this company, and with the usual annual reviews by Rand chairmen, the speech made by Mr. Wallers on Wednesday may be said to have as a feature the sacrifice of all unnecessary detail to clearness. The wealth of *data* contained in the annual technical reports, amply justified this course, and left the way clear for the chairman to devote himself to a broad outline of the position at June 30 last, supplemented by an account of developments since then. The latter—despite the inevitable increase in working costs on account of the war—shows a progressive improvement in tonnage milled, profits and development results. During the year ended June 30 last, the ore reserves were increased by no less than 2,000,000 tons, and the value by $\frac{1}{4}$ dwt. per ton, the total ore reserves at June 30 amounting to just over 8,000,000 tons of 8·4 dwts. "Two desirable features," mentioned by Mr. Wallers, "in connection with the development of the mine in depth are the increased reef width, and the fact that on the western side of the circular shaft the existence of payable upper leaders to a substantial degree has been disclosed." It is a noteworthy fact that the economic limit of excess development is now in sight, and by next year there should be 9,000,000 tons of ore in sight—certainly an ample supply to meet even the contemplated larger milling capacity of 94,000 tons per month. Moreover, in the past three years ore reserves have been increased by 3,500,000 tons; and another outstanding feature is the fact that the latest assays from the lowest levels of the circular shaft have disclosed highly satisfactory ore. Mr. Wallers had, therefore, good reason for describing the ore reserve position as one of "extraordinary strength." Adequate reasons were also given by Mr. Wallers for the delay in connection with the completion of the new plant; and, in view of the circumstances, the fact that the delay is not likely to exceed six months is one upon which all concerned are to be congratulated. Despite the representations of some shareholders, Mr. Wallers had no difficulty in showing that this delay of six months in completing the programme of extension should not be allowed to modify the conservative financial policy of the directors, in as far as the present rate of profit distribution was concerned. That policy, it may be repeated in the chairman's words was, that "practically a new equipment should be paid for out of profits." The consummation of the scheme is merely postponed six months, so that by the end of 1917 "we shall have our plant completed and erected, and have neither debt nor capital commitments." Once again in Rand mining, the big thing—the chairman used the term "heroic"—has proved the sound thing; and, as Mr. J. A. Cohen said, shareholders need no further arguments than the facts contained in the chairman's speech to convince them that they are "partners in the finest gold mine of the Far East Rand."

A PLEA FOR THE FAR EAST.

Mr. Dale Læe's characteristic speech at the annual meeting of the Læe Proprietary Mines last week resolved itself, on the whole, into a plea for the early reform of the Gold Law, with the object of attracting capital to the Far East Rand. To our mind, Mr. Læe weakened an otherwise excellent

address by raising some irrelevant issues.. It is all very well to arouse those responsible for British banking institutions to a sense of their own shortcomings in the past, but to give German banks most of the credit for developing the Rand, strikes us as going a little too far. Nor can we accept, without demur, his condemnation of the Government for its recent action in offering the two Far East Rand areas for public tender. As we have said on a previous occasion, the special circumstances governing the two areas in question seem to us to call for special treatment, and the case for the early revision of the Gold Law is far too strong to be affected by such isolated instances. Apart from these objections, we have nothing but praise for the clearness and force with which Mr. Lace pleaded the cause of the Far East Rand. To his credit it must be said that he has never lost an opportunity for impressing upon the Government the urgency of the matter, and his speeches at the annual meetings of the Lace Proprietary for as long as we can remember have had the same object and burden. This year his arguments are reinforced in telling fashion by Mr. Kotze's report; and Mr. Lace's review of the successive stages in the long and dismal story of Government procrastination and delay makes sorry reading. Two, at least, of the latest facts adduced by Mr. Lace, call for special comment. First, we now know that not only did the American engineers, who recently visited the Rand, not consider the conditions under the existing Gold Law "sufficiently attractive" but, according to Mr. Lace, they held them to be "absolutely impossible," and this in face of the fact that they were perfectly satisfied with the mining prospects of the district. Again, Mr. Lace sounded a new note of warning in regard to the State Mining Commission. "I greatly fear," he said, "that the State Mining Commission, judging from the nature of some of the so-called 'evidence' which recent newspaper details of their proceedings have inflicted upon us, do not themselves appreciate the seriousness of their task, nor how urgent is the necessity for the submission of their report by the time Parliament meets. It is to be hoped that the members of the Commission are not contemplating the prolongation of their labours until they retire to the leisured pursuits of a dignified old age." By all accounts, the Commission is not going to hurry in order to oblige Mr. Lace or anyone else; and we know of no machinery whereby such a body, that has taken for its field of inquiry the whole far-reaching problem of State Socialism v. Individualism, can be persuaded to extinguish itself with its passion for enlightenment unsatisfied. If the development of the Far East Rand has to await the attainment of finality on this question, then we fear Mr. Lace is doomed to further disappointment. The only hope is that Parliament may go forward with the desired legislation, leaving some permissive clauses to cover future experiments in State mining, and allowing the Commission to report in its own good time.

SOME EFFECTS OF WAR ON GOLD MINING.

RECENT references to the effect of the war on Rand mining lend interest to what is taking place on the gold mines of America and Australia. Thus, the last issue to hand of the *Monthly Journal* of the Chamber of Mines of Western Australia, has an interesting editorial on the subject. It has never been possible to carry on operations in the western State under as advantageous conditions as in the other States. The mines of the West are far inland, in an almost waterless and desert country, with little facility for the local production of foodstuffs. Gold to a depth of 200 to 300 feet is oxidized, amenable to simple treatment; but the sulpho-telluride ore at depth requires special and costly methods. The standard of wages has always been high, rendered necessary by the high cost of transport, living, and other conditions. With depth the grade of ore has decreased from \$14.40 per ton in 1893 to well under \$9.60 at present, while the profit in 1903 was \$1.44 and to-day \$1.44 per ton. Large tonnages have to be treated now to make a decent return on the capital. The war has intensified all of these factors, added to which was the difficulty in securing such supplies as zinc sheets, explosives, lead acetate, quick-

silver, cyanide, and special parts of machinery, none of which were made in Australia. The Chamber of Mines took prompt steps to secure supplies, and these are now arriving regularly. The great benefit of the Chamber's organization has been proved, for if the companies had acted individually many would have been forced to suspend work. The following shows increases in some of the mine supplies:—Per cent. increase since the war: Manilla rope, 25·0; shoes and dies, 20·4; fuse, 8·0; clay assay crucibles, 36·1; retorts, 14·1; litharge, 15·5; bicarbonate of soda, 13·4; galvanised iron, 64·0; steel plates, 42·6; cement, 52·7; explosives (gelignite), 25·0; Welsh coke, 36·9; lead acetate, 97·7; borax glass, 38·3; quicksilver, 114·4; zinc shavings, 85·2; cupel material, 13·1; bar iron, 48·0; general hardware, 20 to 25. Oils have advanced from 3 to 4 cents per gallon. In June, 1914, one mine at Kalgoorlie had stores costing \$14,900; a year later these cost \$17,800. Since the latter date there have been further advances in prices. Moreover, as on the Rand, many of the best men employed at the mines have gone to Europe, resulting in a shortage of labour. Again, an American contemporary offers the following useful comment on the same subject:—"Strikes for higher wages in gold-mining districts are prompted mainly by sympathy with copper-mining regions, where the scale of wages is based, in large measure, on the price of copper. This, of course, works a hardship on the operators of gold mines; they are paying more for their supplies, from chemicals to machinery, than before the war, and are gaining no advantage from the big trade in munitions. Indeed, gold has depreciated in value as measured by the supplies, implements, or food that it will buy. On the other hand, the general cost of living has advanced 38 per cent. during the past twelve months, so that the miner's wages do not go as far as they did in the purchase of necessities. Evidently the employer and the employee on a gold mine are both suffering injury from the war and they should know enough concerning the basic facts to be considerate of one another. The strike at the Mother Lode mines of California is " petering out," we are informed, and we are aware of no reason why it should not. Some of the mining companies raised wages voluntarily last year and showed a fair spirit in the matter; it is a pity to make trouble through demands that are not just nor likely to be justified."

INDUSTRIAL PEACE.

ACCORDING to the English papers, there has been a remarkable *rapprochement* between representatives of Capital and Labour in England within recent months. The tone of the Trade Union Conference at Birmingham must have come as an unpleasant surprise to preachers of the "class war." The alternative gospel offered to the Trade Unionists by the Lord Mayor of Birmingham—the "class entente" we may call it—recognised that Capital and Labour were allies, and, consequently, that Labour had a right to some share in deciding the policy of the alliance. Moreover, Mr. G. H. Roberts, the Labour member for Norwich, speaking at the Engineering Conference in London, accepted and emphasised the *entente*. "If the nation is to remain great and if its integrity is to be preserved in the coming years of intensified competition and stress, we must preserve the harmony and co-operation which has characterised all classes throughout the war. . . . The worker recognises that in order that the nation may recover from the wastage of war and that we may retain our trade and commercial pre-eminence, those who remain to work should redouble their efforts to secure the necessary output. . . . These are signs of a better understanding between the employed and employing classes. We have to foster that understanding on the lines of justice for the worker, fairness to the employer, and duty to the nation of which we are citizens." Nothing could be better than Mr. Roberts' last sentence. Very much in the same spirit the President of the Birmingham Chamber of Commerce (Mr. H. W. Sambridge), in an address to the Council of the Chamber, approved of the suggestions made in various quarters for improving the relations between employers and employed. Whether all these suggestions will eventually result in some practical working basis remains to be seen.

THE NEW POWER STATION AT PIGGS PEAK.

[Contributed.]

[THE following account of the new Power Station erected by this old Swaziland mine has been written by an engineer who has recently paid a visit to the mine.]

I left Barberton in the early morning for Pigg's Peak, and after a climb of some 2,000 ft. found myself on the top of Abbotts Hill, the scene from which is not easily forgotten, as one sees the whole of the Barberton Valley scattered out in front of one with small settlements dotted here and there indicating present and past mining camps. From Abbotts Hill one drops down to nearly the same level as one started from into the valley of the Lomati River, from here about two hours' ride brings one to the half-way house kept by Mrs. Lloyd and family—old identities. An hour's ride brings us to the Devil's Bridge, a natural bridge over two chasms and famous in this part of the world. The scenery around here is very fine. The story is told that an official of the Peak in the early days negotiated this bridge on his hands and knees, much to the amusement of the local residents. From here a further hour's ride brought us to the workings known as the Devil's Reef, where in earlier days the Pigg's Peak Company obtained a pocket of some £16,000 of gold. Although further riches have been sought for, nothing as yet has been found. A little further on one passes the abandoned workings of the old Havelock Mine. Another half-hour brought us within sight of the Pigg's Peak, with its pretty little settlement. The situation is so fine that one hears with regret that the old mine is passing through hard times. After a well-deserved night's rest I left at 6.30 a.m. the following morning at the invitation of Mr. Sharpley, the general manager, to visit the auxiliary Power Station—recently installed by him to provide the necessary power to develop the lower levels of the mine. On the way to the station, which is situated some eight miles from the mine, I learned that the mine had for years and even in its palmy days, suffered from shortage of power—the existing station being too small to provide compressed air as well as the requisite power to drive the mill and plant. Incidentally, I gathered that the ore was of a most refractory character, and it speaks well for those responsible that the ore when it reaches the creek carries less than a pennyweight of gold to the ton. An hour and a half's ride brought us to the top of the hill overlooking the power station. From here a splendid view is obtained of the country as far as Wilson's Kopje, some 12 miles this side of Hector Spruit, the latter about 47 miles away. All the stores used on this mine are brought by wagon from this station, and it seems wonderful that such low costs are obtained when one sees how far the stores have to be brought. I was informed that the transport rate was £3 10s. per ton. We walked down over the face of this hill and after a drop of some 500 ft. to 600 ft. arrived at the intake to the water race of the new station. Advantage has been taken of a natural gap in the rocks to form this intake, and from which point a short length of concrete flume terminates in a sluice gate at the entrance to the water race. This race is 450 ft. long by 2 ft. 6 in. high by 3 ft. wide, made of corrugated iron set in square timber frames. Not a leak was to be seen, although I was informed the race was made out of an old building. Many practical points I noticed, among which may be mentioned the way the corrugated sheets were laid in order to automatically close up any leaks. After passing the overflow gate we came to the end of the race where a reinforced concrete penstock had been constructed. Below, at a distance of 300 ft. lay the station, situated in a hollow carved by nature for the purpose, and connected with the penstock at our feet by two

lines of steel pipes anchored to, or embedded in, concrete blocks. It was difficult to understand that practically all this had been done by Mr. Sharpley and four men with the help of natives, in the space of a single month. I was told that being very shorthanded Mr. Sharpley had gone down and worked alongside of the men, determined to get the plant running by a given date. Mr. Sharpley is a practical man who, though young, has travelled in practically every continent. He speaks very highly of the officials and men working with him, and one can readily understand the good feeling existing in this isolated camp where men are difficult to get, and often equally difficult to keep. From the penstock we descended to the station; here we found a very neat plant consisting of two Pelton wheels, 3 ft. diameter, driving a 100 h.p. three-phase alternating current generator. I was told that very little difficulty was experienced in synchronising this plant with the old one, a synchroscope being employed. The two Pelton wheels were each operated by two nozzles. Mr. Sharpley stated that the work in connection with this portion of the plant, which included the C.I. breeches pieces, adapters, regulators, etc., was carried out by Messrs. Thos. Begbie & Co., of Middelburg, in a very satisfactory manner.

"ON TOUR."

Central Clearing House for Machinery.

The Minister of Munitions has established a central clearing house organisation in the Ministry for the purpose of tracing and registering machinery which is idle or about to become idle. The organisation will endeavour (a) to ensure that contracts placed by the Ministry are directed towards any unoccupied manufacturing capacity which might exist in the country; (b) to place engineering contractors who have suitable facilities for particular supplies in touch with the Ministry and with other Government departments requiring these supplies, and to help contractors who are able to undertake additional or more suitable work now, or at a future date, to maintain continuous employment of their machinery and labour. Manufacturers possessing idle resources and desiring to be placed in touch with Government contracting departments are invited to communicate with the Central Clearing House, Ministry of Munitions, 8-9, Northumberland Street, W., when further particulars will be sent.

VENUS
PENCILS

Made in 17
grades 6B
to
9H

Price
6d.
each.

DON'T
THROW
YOUR MONEY
IN THE GUTTER.

That is what you are doing when
you purchase the ordinary
"cut-away-quick" (here
to-day gone to-morrow)
pencil.

A 6d. "VENUS" Pencil bought to-day is an
assurance for a long period of maximum
writing comfort and pleasure.

YOUR
STATIONER
STOCKS VENUS.

PROSPECTS OF THE SHAMVA MINES.

Dr. G. S. Corstorphine's Geological Report on the Gold Deposits.

THE report from Dr. G. S. Corstorphine, the consulting geologist, referred to in the chairman's speech at the last meeting of Shamva shareholders, has now been received. It opens with an exhaustive technical description of the general geology of Shamva Hill, and then, coming to the gold deposits, proceeds: "On the northern slope of Shamva Hill, between the top of the ridge and the open working of the mine, a line of prospecting pits marks the position of some quartz veins, or stringers, which yielded gold, though not in sufficient amount to encourage extended operations. It was, however, I understand, through the attention directed to these unimportant veins, that the discovery of the auriferous nature of a considerable section of the rock of the hill itself was made.

This main ore body, now being worked by the Shamva Company, lies some distance below the top of the hill, extending from the surface, with an average breadth of some 150 feet, down to the 2nd level, between which and the 3rd level it becomes considerably narrower, the narrowing being still more conspicuous from the 3rd to the 5th level. In length there has also been a shortening from the 2nd to the 3rd level, especially towards the eastern end, and considerably more again between the 3rd and 5th levels. From the present developments no values have yet been obtained below the 5th level. The course of the ore body is more or less vertical down to the 2nd level, but its walls have a varying trend, and do not conform with any one set of the main joint planes of the rock. Below the 2nd level the values diverge from the vertical, and the gold-bearing portion of the rock lies across the main jointing with a northerly dip. Between the 4th and 5th levels the gold-bearing zone is again vertical. The gold-bearing rock is simply a portion of the micro-granite, with no regular boundaries, and with a varying width and trend as it has been followed downward. It must also be remembered that the portion selected for mining does not comprise the entire gold-bearing mass, but only that portion of it which carries gold above a particular value. The boundaries of the gold-bearing zone have been found more abrupt on the hanging than on the footwall. In the latter position gold has been found in places behind comparatively, or actually, barren zones; and there is also, as a rule, a more gradual dying out of values where the footwall has been explored than is the case in the hanging wall. Owing to the development of the mine having been carried on by adits from the face of the hill, through the hanging-wall, the latter has been exposed and sampled on the different levels through a greater thickness than has yet been done on the foot. When the gold-bearing portion of the micro-granite is examined, it is found to show little difference from the barren parts, and it is impossible to lay down any criterion by which valuable and valueless rock can be distinguished *in situ*. In many places the auriferous rock has numerous small veinlets of calcite or other carbonates, and the mass is divided up by more abundant jointing than the country rock shows. It would seem to hold good throughout, that where the main joints are few and relatively widely separated, gold values are absent. On the other hand, very hard compact rock, difficult both to drill and to break, is not characterised by low values. It is correct, however, to say that, within the limits of the ore-body, one may find all the variations in the rock which are found in the country; while, in some parts of the latter, barren rock

is found with an abundant carbonate as is contained in the gold-bearing portion. Visible gold has occasionally been found in oxidised veins, or cracks, lined with a clayey haematite. The gold, however, must in general be very finely distributed; none occurs in the microscopic slides I had made. The percolation which has taken place must also be assumed to have affected the distribution of the gold, producing some of the variations in value which occur from place to place. It is difficult, however, in a rock of this type to distinguish between the variations in gold-content due to primary conditions and those due to secondary. It is also difficult to explain the limitation of the gold to that portion of the micro-granite now known to be gold-bearing. The eastern limit of values from above downward has a certain coincidence with the trend of one of the gullies which originally carried the storm-water off the surface of the hill, and there is a corresponding, though less marked, coincidence of the western limit of the deposit with another small ravine. Whether any process of leaching has been effected by the surface waters, entering the rock in the vicinity of the ravines, is a question for whose solution there are at present no data. If such leaching did occur, the place to which the gold has been removed has not been discovered. The dykes, as far down as they have yet been met, are much more weathered than the acid rock. They play no important part in the structure of the hill, nor have they had any effect on the gold contents. On the 3rd level, below the gold-bearing portion of the rock, a fault or fracture is very apparent. This passes obliquely downward through the deposit, and is found in the hanging wall on the 4th level. If the known portion of the fault line is continued upward, it is found to coincide closely with the slope of the base of the ore body from the 3rd up to the 2nd level. The change of trend which the base of the ore body makes between the 2nd and the 3rd levels is striking, and the question naturally arises whether the fault has had any effect on the gold-bearing portion of the rock. The available evidence is rather that the fault has not been the cause of the diminution in size of the ore body, but that the smaller areas of gold bearing rock opened on the 3rd, 4th and 5th levels are the normal continuations of the larger body above. In other words, the "fault" is only a fracture, and not a fault, in the accepted sense of a break along which a displacement has taken place. The development below the 2nd level has given the position and shape of the ore body on the three lower levels, and there is no evidence, other than the existence of the very marked fracture, to suggest that the lower portion of the gold-bearing rock is not the normal continuation of the upper. On the other hand, in a rock of the nature of the micro-granite, where there is little distinction between adjacent masses, it might be that some displacement has occurred, and that the narrower body of gold-bearing rock below the fault belongs to the hanging or footwall country in relation to the upper part of the deposit. If there has been any displacement along the fracture it is likely to be that of a normal fault, the upper part of the ore body having been moved downward and forward away from the main mass, which would be further in the hill. I think, however, that it is more likely that we have to face the fact that the present extent of gold-bearing rock down to the 5th level is one particular shute, and that the limits, as shown by the present workings, give practically its entire mass. There is, however, quite reasonable hope that other ore bodies exist, either in the hitherto unexplored mass of the micro-granite or on some part of its periphery. The existence of the Cymric deposit is an encouraging feature, for, as I have said, it, too, is in the same intrusive mass.

After some brief advice on prospecting operations, Dr. Corstorphine finally says: "The conclusion to which I have arrived is that practically the whole of the micro-granite should be prospected, there being every reasonable ground for the hope that other gold-bearing zones, similar to the two at present known, exist in it."

New Patents.

- 276. Roger Jenkins.—Improvements in portable wall brackets.
- 277. Sidney Donald Saunders.—Improvements in safety suspending devices for mine skips, aerial gears, cages, and such like.
- 278. Charles Hodges and Henry Jackson.—Improvements in and relating to the flushing of water-closet basin and the like.
- 279. George Edwards.—An improved form of shovel.
- 280. Adolf Sidersky.—Improved method of converting ordinary watch to wristlet watch, together with glass protector.
- 281. John Glynn.—Improvements relating to the loading and unloading of trucks and other similar railway vehicles.
- 282. William Powell.—Improvements in or relating to the treatment of timber.
- 283. Philip Lodewikus Grobbelaar.—Reaper.
- 284. Olindo Valeri.—Improvements in longitudinal sleepers for railway and tramway tracks.
- 285. Albert Thomas Harris.—Improvements in spray nozzles and atomisers for liquids.

- 286. The Menco-Elma Syndicate, Ltd., and George Polland.—Improvements in or relating to reversing gear.
- 287. A. and J. Main and Co., Ltd., and John James Cameron.—Improvements in and relating to fencing gates, walls, and other enclosing means.
- 288. Eustace Moriarty Weston.—Improvements in respirators and the like.
- 289. John George Robinson and The Superheater Corporation, Ltd.—Improvements in and relating to steam superheaters of the multiple moke or fire-tube type.
- 290. Joseph Woods.—Improvements in or relating to abdominal supports and the like.
- 291. Edward Parker.—Good air arrangements for the mines.
- 292. New Non-Refillable Bottles, Ltd., and Francis Alexander Blair.—Improvements in non-refillable bottles.
- 293. Heine Wolf Adler and Charles Berton Simonsen.—Improvements in water blasts.
- 294. Albert Carmel.—A specific remedy for sicknesses in cattle, sheep and the like.

RHODESIAN MINING CONFERENCE RESULTS.

Text of Resolutions Passed on Many Questions.

The following resolutions were passed at the Mining Conference, which opened at Salisbury on the 15th November:—

"That in the opinion of this Conference the reduction in the price paid at this time, of 1s. per oz. for native gold, is not justified by the altered conditions resultant upon the war."

"That in the opinion of this Conference the Government should place its services at the disposal of the mining industry in order to assist in the disposal of bullion in an equitable manner during the continuation of the war."

PRICE OF SILVER.

"That in the opinion of this Conference the price paid by the banks for silver is not commensurate to the market price now ruling in Great Britain, and the Government be requested to take such action as may be deemed advisable in order to assist in the alleviation of the position."

Mr. John Buchanan, of the Bessie Mine, Umtali district, in supporting the resolution, said:—"He sold silver as standard silver. His latest figures were: 1,000 ozs. of silver at 1s. 9d., £87 10s. That was what the bank paid him for one of his bars. They wanted to deduct a refining charge of 4½d., which they brought down to 4d., and which amounted to £18 15s., so the total price was £68 15s. That bar was shipped and the following were the prices he received from Johnson and Mack in London: 1,000 ounces fine silver converted into standard ounces, 1,090. The price was 32½d., which came to £117 10s., less freight to Capetown, say, £5; refining charges, 3-8d. per oz., £2; smelting and assay, about another £1; shipping only came to £2. There was also ½ per cent., which he had to pay for the return of the money here, and ½ per cent. on the sale of the bullion; the total of these deductions came to £11, which, deducted from £147, came to £136, which he received for his bar of 1,000 ozs., showing a profit compared with selling it here of £68 15s."

"That in the opinion of this Conference the demand by the Government for the payment of claim licences by mine owners or tributors when treating sands and slimes only, which have been derived from claims upon which claim licences have previously been paid during the accumulation of such sands and slimes, is unreasonable, and that the Government is requested to grant exemption from the payment of claim licences in such instances."

NATIVE LABOUR.

"That in view of the prevailing scarcity of native labour, chiefly owing to the suspension of recruiting operations by the Rhodesian Native Labour Bureau (at the request of the military authorities) in certain portions of the northern territory, His Honour the Administrator be approached with the endeavour to enlist his sympathy and obtain his assistance in the matter of an additional supply of labour for the industries of the country; that this Association suggests a similar action as was previously adopted under somewhat similar circumstances, whereby the Native Commissioners were allowed to represent the state of affairs to the indigenous natives of Southern Rhodesia; that this Conference, in embodying this suggestion in the resolution to his Honour the Administrator, feels sure that the local native, realising his duty to the Empire in this time of war and altered circumstances, will loyally and willingly respond to the urgency of the situation if and when represented to him by the proper authorities.

"That with a view to assisting in the detection of crime by natives and the tracing of deserters, the Government be requested to insist upon an impression of each native's fingerprints being made upon such native's registration certificate."

"That the B.S.A. Co. be requested to sell lime on lands belonging to it at the ordinary current market prices, or to give producers of lime the first option to acquire areas on which lime is found."

"That the Government be requested to improve the facilities for medical attendance, especially in outside districts, and to place all medical charges on a more reasonable basis."

PRICE OF MEALIES.

"That the fluctuation in prices of mealies and mealie meal due to speculation and other causes are detrimental to the mining industry, and that action be taken to ensure the establishment of fair and uniform prices extending over a term of years, and that a committee, consisting of Colonel Grey, Mr. Pulbrook, Mr. Begbie, and the mover (Captain Wells) be appointed to meet the Directors of the Farmers' Co-operative Society to discuss the question of terms and price of grain for a period of three years, and submit the result to the Chambers of Mines and the Small Workers' and Tributors' Association."

"That the question of extra-lateral rights be carefully considered, with a view to abolishing them, and in future the vertical boundaries of any mining location shall constitute the limits of ownership to the minerals in any block."

"That any native who has been convicted of serious assault upon Europeans should have the fact recorded on his registration certificate."

"That a central body be now formed, to be called the Rhodesian Mining Union, to which all mining chambers and associations can belong, and that a committee be formed, consisting of one member from each of the two Chambers of Mines and from the Rhodesian Small Workers' and Tributors' Association, to draft rules and regulations for the consideration and confirmation of the Chambers and Associations concerned."

ANSWERS TO CORRESPONDENTS.

All inquiries addressed to the Editor must bear the writer's name and full address. We cannot reply to inquiries by letter, but telegrams with replies prepaid will be answered. Correspondents are requested to write their names and pseudonyms distinctly.

"K." "Investor," and "Miner."—The Kleinfontein mine is doing excellently, and no notice should be taken of "bear" reports.

"Anxious."—An official announcement is expected any day now.

"W. H. B."—The dividend will not be altered.

"R. R. O." (Gatooma).—The first three syndicates in your list are in liquidation. Nos. 4 and 5 are very speculative, and now stand at purely nominal quotations.

"A. R."—The numbers have been forwarded.

"J. W. H." (Queenstown).—Nothing wrong with the mine—dividend will be as usual, with prospects of substantial increase next year.

"Anxious H."—An official announcement will be made next week.

TANGIBLE RESULTS OF THE SAFETY CAMPAIGN.

Reduction in Accident Rate Due to Greater Care Exercised by Employees.*

"The Reef" is pleased to record a decline in the accident injury and death rates for the Witwatersrand gold mines every year. It is still more pleasing to be able to state that the reduction in the accident rates is due to the greater care exercised by mine employees in the performance of their work. Whether the fact that greater care is taken is the result of the "Safety First" movement or not is immaterial, the fact remains that accidents are decreasing in number, and that the reduction is due to precautions taken by underground employees. It may be due to stricter discipline enforced by underground officials, or it may be due to the realisation by employees of their sense of duty and the obligations which they owe to themselves and others. As we say, it does not really matter which it is so long as the accident rate is reduced, and as long as employees are taking precautions to keep it down. Every one of the last three years has seen a record low accident rate for the Witwatersrand gold mines, which is a matter for congratulation on the part of everyone connected with the mining industry. People will tell you that it should not be so, because the majority of the experienced and practical miners have left the mines, for various reasons, and their places have been filled by raw and inexperienced workers. It was only a few years ago that the Government officials were lamenting the loss of many good and experienced miners, and attributed the high accident rate to the inefficient and ignorant workmen who were taking their places. It is all the more to the credit of these workers that they have succeeded in reducing the accident rate below the best which the experienced and old miners could ever attain, and we hope to see their success in this direction continue until we have an accident rate on these fields which will compare favourably with the accident rate for mines in European countries.

IMPOSITION OF PENALTIES AS A DETERRENT.

There are only two principal methods by which employees can be induced to carry out the regulations and to take proper precautions for their safety. These methods are either by inflicting penalties or by exercising persuasion. The imposition of penalties is absolutely necessary in some cases, as it is the only means of inducing workmen to recognise their obligations. There is no doubt that the fear of a fine or discharge from employment weighs to a large extent with employees, and acts as a preventative to reckless and thoughtless risks which would otherwise be taken. It, however, does not seem right if the exercise of precautions which a workman should take in his own interests can only be enforced by threats and fear of penalties and punishment. We are afraid there is not that feeling of shame amongst employees which there should be at being fined by an inspector or a manager. The attitude on the matter reminds one very much of the manner in which a schoolboy looks at a caning from his master, and the attitude of other school children to the culprit—rather one of admiration than condemnation. It is really public opinion which should condemn the transgressor to punishment, and not only the verdict of the inspector or manager. He should be looked upon as a wretch who has broken the cardinal law of self-preservation, and as a ruthless destroyer of the moral and legal obligation not to perform an act which might injure his fellow-men. Yes, we would like to see the transgressor condemned by the judgment of his fellow-workmen, because then the realisation of his offence would be brought home to him much more acutely.

WHERE THREATS AND PERSUASION FAILED.

A case happened not so long ago in which a mine official tried threats and persuasion, but to no avail. We quote it as an illustration. There was a development winze in which there was a small skip for hoisting rock and letting down material, but which was not authorised for and was unsafe for the riding of persons. There was a notice placed up that no one was allowed to ride in the skip. The developer used periodically to make use of the skip to save himself the trouble of walking up the winze. His natives emulated his example, and also took joy rides. One day one of the natives was caught between the hanging and the skip and was killed. Then there was trouble, because the natives said they used to ride in the skip because the white men rode in it. The mine captain got hauled over the coals for not keeping proper discipline, and the miner was cautioned. The mine captain was annoyed because he had warned the miner about riding in the skip on several occasions. So the next day he went and had it out with him, and warned him that he would sack him on the spot the next time he caught him or his natives riding in the skip. He, however, thought it might be more effective also to use persuasion. So he told the miner that he was not playing the game, that he would only get himself injured, or get him (the mine captain) into trouble if another accident happened, and put him on his honour and made him promise that he would not do it again. Within a few hours the miner was brought to the surface seriously injured through the skip upsetting whilst he was riding in it. So that neither threats nor persuasion availed, although the mine captain thought that persuasion was the highest inducement at his command to enforce the workman not to do a risky act.

PERSUASION AND "SAFETY FIRST."

The essence of the "Safety First" movement is to try and induce workmen by persuasion to realise their obligations and duties. The movement, therefore, aims at the highest ideals in trying to persuade employees to carry out the regulations and to take precautions for their safety, as opposed to the method of imposing penalties and punishment for unlawful acts and omissions. Persuasion tries to prevent the occurrence of the accident, whilst punishment only acts as a deterrent to another accident occurring. There is no doubt that if a man can once be persuaded that to take a risk does not pay, that man will not run the risk. The movement, therefore, consists in showing employees the dangers which surround them, and educating them how to avoid these dangers by precaution and foresight. Perhaps we may be accused of hammering in dangerous practices and carelessness *ad nauseam*, but still it does good, because if a certain matter is continually brought to one's mind gradually and almost unconsciously the mind assimilates the suggestion, and finally acts in accordance therewith. There is no doubt that the movement has had the desired effect of inculcating principles of safety in many mine workers, especially amongst those who have the intelligence to learn and profit by the advice and experience of others. We do not think it too much to expect that eventually all mine workers will assimilate the safety habit, and that either consciously or unconsciously they will acquire the safety habit of thinking before performing an unnecessary and rash act, or omitting to perform a necessary and precautionary one. Let us persuade you to acquire the safety habit as soon as possible, because it will pay you. It will make you both a more careful and a more efficient workman. Care and efficiency go hand in hand; it is only the inefficient workman who is careless and contravenes the regulations, for there is no necessity or inducement for the efficient workman to do so. All we ask you to do is to try and think, think of the dangers which you are subjected to, and think how to avoid them. It may be difficult and irksome to

begin with, but soon you will find that the effort of thinking safety will become natural and a second nature to you. You will find that after having acquired the habit of thought in avoiding danger, you will also acquire the habit of thinking out your work, which will make you a more efficient workman, and react to your pecuniary advantage. So get "the safety habit," it will pay you, both in keeping you sound and healthy, and in increasing your efficiency and value in the labour market.

ACTS OF BRAVERY.

There is another aspect of Safety First which we would like to touch upon. It is to place the safety of one's fellow-workmen before one's own safety, and to risk one's life for the purpose of rescuing another who is in danger. This is

the highest duty which one can perform for one's fellow-man. The history of mining on the Rand contains some of the finest and noblest instances of heroism and self-sacrifice which one can find anywhere. There is no obligation on a man to risk his own life to save another's beyond a voluntary and high sense of duty which he feels that he owes to himself and to his fellow-workman and which he places above every other consideration, even his own life. It is a matter of regret that these acts of bravery have not all in the past received the publicity and recognition which they merited, but this is a defect which we intend to remedy for the future and which we intend to remedy, now that we have a paper and other means of making these matters known.

*From *The Reef*.

The number of foreign firms with whom, according to the Consolidating Statutory List (made up to and including September 29), trading is prohibited totals 1,853 firms, which are distributed in the following numbers among the various countries:—Argentina and Uruguay, 115; Bolivia, 34; Brazil, 171; Central and South America (all countries), 5; Chile, 50; Colombia, 16; Cuba, 10; Denmark, 36; Ecuador, 74; Greece, 63; Iceland, and Fjord Islands, 5; Japan, 93; Liberia, 13; Morocco, 91; Netherlands, 162; Netherland East Indies, 95; Norway, 97; Paraguay, 2; Persia, 56; Peru, 48; Philippine Islands, 50; Porto Rico, 2; Portugal, 77; Portuguese East Africa, 76; Portuguese West Africa, Portuguese Guinea, Fernando Po, and Rio Muni, 12; Spain, 201; Sweden, 90; United States of America 81; Venezuela, 28. In a circular accompanying the List the Controller of the Foreign Trade Department points out that although the Statutory List has now been in existence for seven months, cases still come to the notice of the Department in which firms are corresponding with persons on the List, and they not infrequently give as an

excuse that they have never heard of the List. It is important that every one engaged in foreign trade should realise that he is under obligation to make himself familiar with the Statutory List and to observe it in his dealings. Failure in this respect renders him liable to the heavy penalties provided by the Trading with the Enemy Acts, and these apply to holding any communication whatever with anybody on the Statutory List and not merely to entering into an agreement or continuing to carry on business with such persons. In exceptional cases where it appears to be necessary and where it is not contrary to the public interest, a licence may be obtained from the Foreign Trade Department, Lancaster House, St. James's, S.W., exempting from the prohibition. The Statutory List is published at intervals in a consolidating form in the *London Gazette* and *The Board of Trade Journal*, and additions, which are published in these papers, are made approximately at intervals of a fortnight. The lists are also circulated to a number of trade papers. Persons engaged in foreign trade should take steps to have access to one of these sources of information, and should only rely on a trade journal if they have reason to know that it publishes the list in full.

Revolution in Line and . . . Half-Tone . . . Blocks. . . .

SPECIAL CONTRACTS ENTERED
INTO FOR THE TRADE.

The Argus Printing and Publishing Company, Ltd.,

having just added to their already extensive
PROCESS BLOCK DEPARTMENT the most
up-to-date Labour-Saving methods in the pro-
duction of Line and Half-Tone Work, are now
in a position to undertake all classes of BLOCK
WORK at Ridiculously Low Prices.

In addition to the very FINE CUT PRICES,
we are also in a position to execute Blocks
WITHIN TWO HOURS

after receiving order. This is a consideration
in itself where Advertising and Catalogue Work
require illustrations.

Save Two Profits by placing your order direct with

The Argus Printing & Publishing Co., Ltd.

Telephone 3232.

P.O. Box 1014.

LATEST RESULTS FROM NEUMANN MINES.

Knight Central and Wit Deep Development—Position of the Main Reef Group.

At the Consolidated Main Reef, the profit for the quarter ended 30th September was £39,033. The ore milled amounted to 83,995 tons, and the total yield was 29,527.775 ozs., of the estimated value of £122,917. The report on the reef values states that excluding stations, main cross-cuts, other cross-cuts and prospecting work, ore passes, shaft raise and shafts, 2,769 feet, or 80·1 per cent., have been on reef, of which 2,738½ feet were sampled. Of this, 1,770 feet, or 64·6 per cent., have been payable of an average value of 8·4 dwts., over 49 inches; and 968½ feet, or 35·4 per cent., have been unpayable of an average value of 2·6 dwts. over 52 inches. And of this payable portion 1,459 feet, or 82·4 per cent., have been on main reef leader, of an average value of 8·5 dwts. over 49 inches; and 311 feet, or 17·6 per cent. have been on south reef of an average value of 7·7 dwts. over 48 inches. The ore reserves on the 30th September amounted to 850,770 tons.

At the Wit Deep, the profit for the quarter was £41,336. The tons crushed totalled 126,420, and the total yield was 35,549·82 ozs., of the estimated value of £147,767. The south incline shaft was sunk 169 feet to a total depth of 1,345 feet, and timbered 85 feet, to a total depth of 1,210 feet. The No. 3 north incline shaft was sunk 13·5 feet, to a total depth of 397 feet, and timbered 15 feet, to a total depth of 380 feet. Of the total development, 743 feet, or 49·48 per cent., have been on reef. Altogether 617·5 feet have been sampled. This total comprises 375 feet, or 60·73 per cent., averaging 11·26 dwts. over 35·49 inches, and 242·5 feet, or 39·27 per cent., averaging 5·06 dwts. over 26·69 inches. The ore reserves on 30th September were 1,591,090 tons.

At the Main Reef West, the profit for the quarter was £7,248. The ore milled totalled 76,430 tons. The total yield was 119,801·632 ozs., of the estimated value of £82,429. The report on the reef values states that excluding stations, main cross-cuts, other cross-cuts, and prospecting work, ore

passes, rope races, shaft raises and winze shafts, 2,218 feet, or 71·7 per cent., have been on reef; of this, 669½ feet, or 30·2 per cent., have been payable of an average value of 6·5 dwts. over 49 inches; and 1,548½ feet, or 69·8 per cent., have been unpayable of an average value of 3·1 dwts. over 46 inches. And of this payable portion, 499½ feet, or 74·6 per cent., have been on main reef leader, of an average value of 7·1 dwts. over 51 inches; and 170 feet, or 25·4 per cent., have been on south reef of an average of 5·4 dwts. over 42 inches. The ore reserves on the 30th September amounted to 332,910 tons.

At the Knight Central, the profit for the quarter was £3,504. Tons crushed amounted to 77,900, and the total yield was 19,572·50 ozs., of the estimated value of £81,411. The west subsidiary shaft has been sunk 72½ feet to a total depth of 668 feet, and timbered 20 feet to 535 feet. Sinking has again been delayed by water trouble. The 16th level engine chamber and waste pass are nearing completion. A transformer station has been cut out on the 16th level. The east subsidiary shaft has been sunk 110½ feet to a total depth of 665 feet, and timbered 110 feet to a total depth of 580 feet. An additional sump has been cut for the 116th level pumps. The 16th level auxiliary winze has been sunk 231½ feet to a total depth of 846 feet. The report on the reef values states that north of Simmer dyke, a total of 815 feet has been sampled, of which 370 feet, or 43·8 per cent., averages 6·3 dwts. over an estimated stoping width of 50 inches, and 475 feet, or 56·2 per cent., averages 2·4 dwts. over 63 inches. South of Simmer dyke, a total of 815 feet has been sampled (averaging 3·8 dwts. over 71 inches) of which 255 feet, or 31·3 per cent., averages 7·0 dwts. over an estimated stoping width of 70 inches and 560 feet or 68·7 per cent., averages 2·3 dwts. over 72 inches. The 17th level cross-cut from the 16th auxiliary winze has again intersected the main reef faulted further south. The value in the cross-cut was 8·1 dwts. over a stoping width of 78 inches. The total payable ore exposed as at 30th September was 328,750 tons.

The American mining and refinery companies have simply coined money out of the requirements of the European belligerents. Following on the biggest order ever placed, 448,000,000 lb. of copper, at 27 cents per pound, an inquiry was in the market recently for another 200,000,000 lb. for the first half of next year. At the end of September about 70 per cent. of the output of the American refineries for the first half of next year had been sold. J. D. Ryan is still bullish, and thinks high prices will continue for quite another year. Even a production in 1917 of 2,000,000,000 lb. will not, in the opinion of experts on the other side, be sufficient to meet the demand when "earnings, production and consumption will be record-breaking."

The Lonely in October.

The following are particulars of the output from the Lonely Mine, Rhodesia, for the month of October, 1916:—Mill ran 686 hours; crushed 5,000 tons; fine gold recovered, 1,302·425 ozs., value £5,475 3s. 9d.; slimes treated, 5,000 tons; fine gold recovered, 2,711·222 ozs., value £11,400 12s. 2d.; total recovery of fine gold, 4,013·647; total value, £16,875 15s. 11d.; profit, £7,644 17s.

Manicaland Output.

The mineral output of the Territory of the Companhia de Moçambique (Manicaland) for the month of October, 1916, was as follows:—Reef: Mill: Gold won (fine), 231 ozs. 0 dwts. 5 grs.; tons crushed, 631; value, £970 0s. 5d. Alluvial: Gold won (fine), 931 ozs. 17 dwts. 19 grs.; cubic metres dredged, 80,000; value, £3,863 0s. 9d.

The American Vice-Consul at Port Elizabeth reports that indications of the presence of mineral oils in the district immediately surrounding Port Elizabeth have attracted the attention of a group of local capitalists, and the Uitenhage Petroleum and Mining Company has been incorporated in South Africa under very broad articles. Papers have been filed with the Government on June 15, 1916, and the full issue of shares was immediately subscribed. The field was surveyed by a prominent British expert, who reported the geological formation to be very similar to that of the Caucasus belt. Prospecting operations which then followed resulted unsatisfactorily. The present site was selected after consulting several prominent South African geologists, and is three miles from a main line railway and 20 miles from Port Elizabeth. It is estimated that the subscribed capital will be sufficient to sink and case a test hole to a depth of 15,000 feet, 300 of which have already been completed. Cores of various depths have been submitted to the Government geological department, with the result that strong indications of a rich petroleum base oil were reported. The capital is to be increased if further tests justify such a course.

Mr. J. M. Calderwood expects to sail from England for South Africa by the Kenilworth Castle to-day.

When communicating with advertisers, kindly mention the *South African Mining Journal*.

Correspondence and Discussion.

Comments on Questions Arising in Technical Practice or Suggested by Articles in the Journal—Views, Suggestions and Experiences of Readers.

Kleinfonteins.

To the Editor, *South African Mining Journal*

Sir,—The usual crop of rumours has been spread in regard to this company, which is now fairly into its stride, and this month's profits will be entirely satisfactory, even if the clean-up is not so drastic or as close as December may be. A profit of £26,000 monthly is reckoned upon by experts, and this will allow of 4s. to 5s. yearly dividends being paid out from next year onwards. It is estimated that about £20,000 worth of gold has been absorbed in setting the plates in order. All matters are now normal at the mines, and the reefs up to average values, with the chances of richer rock being touched, and the Van Ryn Deep or Brakpan high grade ore tapped at any shift, as the main north haulage of the latter mine has rich ore along and towards the north-east corner of the Apex section, and the westerly workings along the eighth level west of the west shaft, in the Van Ryn Deep are in promising country of good grade, which is going towards the lower levels of the Benoni workings, so all things considered, an increased assay value in these areas can be expected, and may be now quite within a short distance of the miner's pick.—Yours, etc.,

STUDENT.

According to the statistics furnished by the *Bankers' Magazine*, the values of 387 representative Stock Exchange stocks, of the nominal value of £3,424,586,000, declined £65,000,000, or 2·3 per cent., in the period from September 20th to October 20th, the largest amount of depreciation recorded for some. In nine British and Indian Funds the fall amounted to £18,598,000, or 3·3 per cent. The largest rateable shrinkage was 7·0 per cent. in eight miscellaneous mining shares, but the largest actual drop was £27,540,000, or 4·8 per cent., in 31 Foreign Government stocks. There was an increase of £1,180,000, or 2·6 per cent., in six copper mining shares, and smaller gains in Colonial and Foreign Corporation stocks, 17 American Railway shares, 21 Insurance shares, and eight Iron, Coal, and Steel issues.

Companhia do Nyassa.

The report of the Companhia do Nyassa for 1915 states that the bad effects which the outbreak of the European War in August, 1914, had had on the company's territories continued during 1915, and even more so during the present year these bad effects increased. The development of the territories is carried out in two main directions—agriculturally and commercially. The development of the mineral wealth, which abounds in the form of coal, mica, graphite, etc., awaits transport facilities to the coast. Agriculture, which provides goods for local consumption and for export, is carried on by Europeans on large plantations and farms, and also by the natives on small farms. The Europeans employ up-to-date methods, especially on the cocoanut plantations, which have greatly developed during recent years, while the natives employ their own rudimentary methods, which, however, have

Rand Klip and Cloverfield.

To the Editor, *South African Mining Journal*.

Sir,—Is there any really sound reason, I should like to ask, why mines such as the Rand Klip and Cloverfield should continue to be closed down, when other mines in the vicinity are positively booming with prosperity? Take, for example, the report of yesterday's meeting of the New Modderfontein Company. It is the duty of the Government to foster the industry as much as possible, and they would, instead of playing with State mining, be conferring a greater benefit on the community by assisting these dormant mines to restart operations. An amalgamation on equitable terms of the mines mentioned—whose shafts are already, I understand, on payable reef—with the new Modder area, for which tenders were recently invited, would form a very fine proposition, and I am quite sure the whole of the capital necessary to bring such a combination to the producing stage could be found in South Africa within a week. Is it any use suggesting this to the parties concerned?—Yours, etc.,

AMATEUR.

Johannesburg,
30th November, 1916.

[It is understood that efforts are being made in the direction suggested.—Ed., *S.A.M.J.*]

improved in some districts. Since October, 1914, the Portuguese Government have maintained large military forces in the territories, which were further increased after Germany declared war on Portugal. These forces consumed not only all the production of native foodstuffs, but also utilised the services of large numbers of natives on the work of the expedition, such as construction of military roads and telegraph lines, and as carriers, etc. This prevented large numbers of the natives from cultivating their plantations, the result of which was that, taken in conjunction with a bad agricultural year owing to adverse weather, the existing foodstuffs were all consumed. During the present year the situation has somewhat improved, but is still far from normal, as the causes thereof—namely, the employment of nearly all the male natives by the military expedition and the consumption of foodstuffs by the soldiers composing it—still continue. The paralysation of commerce was chiefly due to the lack of maritime transport, which is practically limited to the steamers of the *Empreza Nacional*, and these are principally employed as transports for the military expedition.

SUBSCRIPTION ORDER.

Date.....

The South African Mining Journal,

P.O. Box 963, JOHANNESBURG.

Please enter my name as a subscriber for *The South African Mining Journal*. I remit herewith.....
in payment for one year, commencing.....

Name

Address

SUBSCRIPTION RATES.

Oversea, £2. South Africa (by post), £1 10s.

Local delivery, £1 6s.

*Back numbers, when available, will be sent if required.

THE WEEK IN THE SHAREMARKET.

General Improvement—Recovery of Brakpans and Springs.

On Saturday morning the liquidations ceased, at any rate for following are the quotations for outside stocks:—Verdites, 1s. 7d. to 1s. 9d.; Phoenix, 10d. buyers; South Van Ryn, 3s. 9d. to 4s.; Antimony, 5s. sales; New Daggas, 20s. buyers; Options, 8s. buyers; Areachaps, 6s. buyers; Henderson's Options, 9d. buyers.

the time being, as foreseen in last week's report. Modder Deep and Brakpans were the only weaker features at the call. Once again the swing of the pendulum is in favour of Modder B's, which are at present 2s. in advance of their Deep competitor. Bantjes recovered no less than 20 per cent. on their yesterday's drop. The following stocks were all to the good, though in some, or rather in most cases barely a turn. Sub-Nigels, Springs, Kleinfonteins, New Modders, Modder B, Knight Centrals, Government Areas, Geduld Props., Consolidated Main Reef and City and Suburban. There is, however, no great activity, and one may look for a period of marking time.

The market opened dull on Monday morning. There was a further advance in Bantjes. There was also an appreciable rise in Pretoria Cements, Robert Victors, and S.A. Lands; while Sub-Nigels and Wit Deep were the turn better. Springs and Kleinfonteins were both easier. Main Reef West Debentures had a further drop and were on offer at £17 10s.

On Tuesday, although the liquidation seems stayed, business was restricted and prices generally lower, when not unchanged. The Modder trio proved the exception, giving the impression that those who had money to invest were getting tired of speculative stocks. Van Ryn Deep and Coronation Collieries were also harder. Tins were decidedly weak, as represented by Zaaiplaats and Rooibergs. The following were all lower, Bantjes, Wit Deep, Geduld Proprietary, Springs, Sub-Nigels, Kleinfonteins and Main Reefs. Subsequently Modder B's made a further advance; but the feature of the day was found in Springs, which began steadily to creep up after the Call, until there was a difference of no less than 4s. 3d., between the minimum on Call and the maximum at the close. Towards the latter part of the afternoon, 2,000 shares were offered in one line at 5s. 3d., and promptly taken. The price then rose to 6s. It looks as if there had been a big bear account open, though some think there is in addition a gamble on their prospects of a good share in the new mining area.

Springs Mines again monopolised the market from its opening, and at the Call were dealt in at a further rise of 2s. on the closing price. The whole tendency was better the only shortfall being in Transvaal Gold Mining Estates. African Farms were also dull, but unchanged. The following all showed advances: Bantjes, Brakpan, City Deep, Consolidated Mines Selection, Cloverfields, Geduld Props., Government Areas, Modder B, Modder Deep, Kleinfontein, Rand Klip, Rand Selection, Sub-Nigels, Springs and Van Ryn Deep. During the day, Springs eased off slightly. There was very little difference in prices on Thursday morning. Springs were the same as at the close overnight. Rand Selections, Unifids, Kleinfonteins, New Eras, Gedulds and Brakpans were all slightly better, 3s. 6d. on 92s. 6d. being offered for a 30-day Call on the last, but nothing under 5s. was to be had. Van Ryn Deep and City Deep went lower. There was a further rise in Clovers and Rand Klip on the gamble as to their possible chance with the Modder B alternative tender. General Mining and Finance, after years of oblivion, were sold at 6s. 6d.

The market presented some notable features on Friday morning, especially in Brakpans. The first sale was at 93s., followed by another at 94s., and a third at 95s. Mines Selections advanced to 23s. 9d.; Modder B's, to £7 8s. 6d. cash and £7 9s. ex London; Rand Selections were bid to 72s. 9d., with sellers at 73s. 3d.; New Eras fetched 9s. 10d. and closed buyers at the price; Gedulds were also harder at 42s. 6d. buyers; Government Areas made 51s. 9d., but closed sellers at the figure! Sub Nigels fetched 21s. 6d., and a sixty day call was sold at 1s. on 25s.; Van Ryn Deep were sold at 69s. 3d. African Farms were weak at 8s. sellers; Zaaiplaats, which fell to 5s. overnight, only realised 1s. 9d. The remainder of the list is unchanged. The

	Fri.	Sat.	Mon.	Tues.	Wed.	Thurs.
	24th.	25th.	27th.	28th.	29th.	30th.
African Farms	8 6†	7 9*	8 6†	8 5†	8 6†	8 0
Apex Mines	6 6*	7 0†	6 9*	7 0†	—	7 0†
Bantjes Cons.	10 6	12 7	13 0	12 7	12 10*	12 9*
Brakpan Mines	87 0	86 6	—	87 6*	89 0	90 0*
City and Suburbans	37 0*	38 0	—	37 0	37 0*	37 0*
City Deep	32 6*	83 0*	82 6*	84 0*	84 6*	84 0
Cloverfield Mines	8 7	8 7	8 7*	8 3*	9 0	9 3*
Clydesdale Collieries	13 0†	12 0*	12 3*	12 6*	12 6*	12 6*
Concrete Construction	—	3 0†	2 6†	3 0†	2 6†	3 0†
Cons. Investment	19 0	—	19 0*	19 3*	19 3†	19 0*
Cons. Langlaagte	28 6*	28 6*	28 9*	28 9*	—	29 0*
Cons. Main Reefs	18 9*	19 3	18 9	18 3*	19 3†	18 0*
Cons. Mines Selection	20 0	20 0*	20 0	20 0*	22 0	22 6
Coronation Collieries	30 0*	30 0*	50 0*	31 9*	31 0*	31 0*
Crown Diamonds	1 6*	1 9*	2 0*	2 0*	—	2 6*
Crown Mines	60 0*	60 0*	60 0*	60 0*	60 0*	60 0*
East Rand Coals.	2 4*	2 5*	2 5*	2 4*	2 5*	2 5
East Rand Deep.	1 2	1 2	1 1*	1 1*	1 2*	1 1*
East Rand Props.	—	—	14 0*	14 0	13 0*	13 0*
East Rand Debentures	—	—	£70 1*	£70 2*	—	—
Eastern Gold Mines	1 8†	1 3*	1 4*	1 4*	1 3*	1 4*
Frank Smith Diamonds	3 5	3 6	3 8	3 6*	3 7*	3 7*
Geduld Props.	41 0*	42 0*	41 6*	41 6	42 0	42 3
General Minings	—	—	—	7 0†	6 0†	6 6
Glencoe Collieries	10 0*	10 0	10 3*	10 3*	10 3*	10 6*
Glynn's Lydenburgs	—	15 0†	15 0†	15 0†	—	10 5†
Government Areas	50 6	51 3	51 3	51 3	52 0	51 9
Jupiters	7 6	7 *	7 3*	7 6*	7 9*	8 0
Knight Centrals	8 11	9 3	9 4*	9 5*	9 8	9 9
Knights Deep.	25 0†	—	25 0†	25 0†	—	21 0*
Lace Props.	5 0	5 0	5 1*	5 0	5 1	5 2
Main Reef Wests	3 9*	4 0†	3 3*	3 6*	3 6	3 6*
Main Reef West Dels.	£40*	£40*	£47 1*	£47 1*	—	£50†
Meyer and Charltons	107 6*	—	—	—	105 0*	—
Middelvlei Estates	1 3*	1 1*	—	1 0*	—	1 0*
Modderfontein B.	142 6	144 0	144 6	144 0	145 0	145 0
Modder Deep Levels	143 0	143 0	142 0	142 6*	144 6	143 6*
Leenpoort Tins	14 3†	14 0	13 3*	13 6*	12 6*	13 0*
Natal Navigation Colls.	19 0*	19 0*	19 0*	19 0*	19 6*	19 6*
New Boksburgs	1 7*	1 7*	—	1 7*	—	1 7*
New Eland Diamonds	20 0†	20 0†	—	—	20 0†	—
New Era Cons.	9 4†	9 1	—	—	9 3	9 6*
New Geduld Deep.	5 6*	5 7*	5 6*	5 9*	5 8*	5 7*
New Iteriors	54 6†	55 0†	—	—	55 0†	—
New Kleinfonteins	23 9	21 0	23 6	23 0	23 6	24 0
New Modderfonteins	—	372 6*	372 6*	372 6*	375 0*	375 0*
New Rietfonteins	0 9†	0 9	0 9*	0 9*	0 9*	0 9
New Unifids	—	11 0*	—	11 6*	11 6*	12 6*
Pretoria Cements	77 6†	76 0*	78 6	77 6*	80 0†	80 0†
Princess Estates	1 8*	1 8*	1 9*	1 7*	—	1 10*
Rand Collieries	1 9*	1 9*	—	1 9*	1 9*	—
Rand Klips	8 9	8 10*	8 10*	8 11	9 2	10 4
Rand Nucleus	1 7*	1 7*	1 6*	1 6*	1 6*	1 6
Randfontein Deep.	5 0†	5 2†	5 0†	—	—	5 0†
Randfontein Estates	13 0	12 6*	12 6*	12 6*	12 9*	12 9
Roberts Victors	11 0*	11 3*	12 6*	14 0†	11 6*	11 6*
Rooiberg Minerals	11 0†	10 6*	10 6	10 0	10 0	10 0
Roodpoort Uniteds	9 6*	9 0	9 0*	—	9 6*	9 0*
Ryan Nigels	2 6*	2 6*	—	2 6*	2 6*	2 6*
Shobas	1 3*	1 3*	—	—	—	1 3*
Simmer Deep.	4 4	4 4*	—	4 0*	4 1*	4 2*
S.A. Breweries	28 0*	—	28 0*	28 6*	28 0*	28 0*
S.A. Lands	4 4	4 5	4 8*	4 9	4 9	—
Springs Mines	56 9	57 9	58 0*	56 3	62 0	61 6
Sub Nigels	23 0	23 6	23 9	23 6	24 9	24 9
Swaziland Tins	30 0†	—	30 0†	30 0†	—	30 0†
Transvaal and Delgatn	42 0*	42 6*	42 6*	42 6*	43 0*	43 0*
Rand Selections	66 9	67 0	66 0*	66 0*	68 0	70 0
Transvaal Lands	—	13 0*	15 0†	15 0†	—	15 0†
Transvaal G.M. Estates	18 6*	18 6*	18 6*	19 0*	18 6*	18 0*
Van Ryn Deep.	68 9	68 0	68 9*	69 3	70 0	69 6
Village Deep.	29 0†	29 0†	—	29 0†	—	25 0*
Village Main Reefs	16 0*	16 0*	18 0*	—	—	—
Welgedachts	—	—	—	30 0†	30 0†	30 0†
Western Rand Estates	1 6*	1 6*	1 6	—	1 3*	—
Witbank Collieries	44 0*	45 0*	—	—	—	—
Witwatersrands	—	55 0†	52 0*	—	53 6†	53 6†
Witwatersrand Deep.	18 0*	18 0*	19 0*	18 0	20 0†	18 6*
Wolmers	9 6*	9 6*	9 6*	9 9	9 6*	9 6
Zaaiplaats Tins	7 2	7 3	7 2	7 0	6 9*	6 3*

There were buyers during the week of Union 5 per cent. Loan at £99 7s. 6d. to £99 18s. 9d.

*Buyers. †Sellers. ③Odd lots. BEx London.

THE WEEK IN THE MINING MATERIAL AND ENGINEERING TRADES.

The Chairman of the Commercial Exchange Joins the Forces—The Demand for Timber—The American Trade—Local Foundry Castings—Oil and Colour Trade Improving—Diamond Mines Buying.

THERE was a pleasant ceremony in the committee room of the Commercial Exchange on Wednesday morning, when Mr. O. Fletcher, the Chairman of the Commercial Exchange, was presented with a gold sovereign purse as a memento of his departure for England to join the oversea forces. Another rally to the old flag as a personal call of duty. May he have good luck and a safe return to his old haunts.

BUSINESS FOR NOVEMBER.

On the whole this has been a bad month, with a few bright spots. The bright spots were chiefly in connection with those having stocks of copper wire, copper cables and other mining material in any way containing copper. Another good feature has been the constant demand by the mines for timber, chiefly Baltic logs or deals, and in a lesser degree Cape pine and yellow wood as well as mining poles. The Government Public Works Department has also been in the market with good orders for Baltic timbers.

THE AMERICAN TRADE.

In consequence of the difficulty in obtaining freight as well as its dearness, and the congestions on the American railways, there are very few, if any, firm quotations on this side. Therefore, for indenting purposes each enquiry has to be treated on its own merits. In the case of galvanised roofing iron and tin plates, the American representatives here are out of the market, so that no quotations are available, unless in reply to cable enquiries. The business still flows into the American mills in such volume that more and more assorted mining material is manufactured, therefore a greater variety of shipments is promised. However, what with the rumours about shortage of shipping in the early spring of 1917, and the increased orders placed in New York, everything considered points to increased prices, landed in Johannesburg. The chief items to feel the advance will be steel plates, angles, joists, panels, bar plates, black iron sheets, galvanised ditto, all kinds of piping, boiler tubes, tin plates, wire ropes, tram and railway rails, also steel specialities. There is one pronounced exception and that is American motor cars, as the shippers are making a dead set at this market, simply because the British and the central Continental countries are closed to them. The other American cable advices are that lubricating oils are on the advance, for no other reason than the prevailing war conditions, as America is being drawn upon very largely for supplies of every kind.

IRON, STEEL AND FOUNDRY CASTINGS.

The feature of the week has been the casting of a big winding drum by a local engineering firm. It was completed within the time promised, and delivered on one day and started running the next without a hitch, which is very creditable to the local factory and the expert workmen. All the foundries here and engineering shops are kept well employed, as the mines have got into the habit of sending work to them without bothering about oversea material. At present there are no alterations in prices for steel and iron but everyone is looking ahead for further advances, as the British factories are working under full pressure for the Government. As a proof of this, it was recently announced that their railways are in a measure restricted to carrying

heavy war material. We have a certain set-off against the rush in Britain by getting more supplies from America, and although this source has become more erratic, yet fairly regular shipments arrive.

THE OIL AND COLOUR TRADE.

When buying commenced for the December account, there was a better demand for the materials for making paints, as the rains have given an impetus to jobbing work, more particularly in connection with painting the outside walls of prominent buildings in the centre of the town. It is noticeable that the pressure from certain quarters to realise surplus stocks of white lead, turps and oils has ceased. It may be that a little too much was made of the circumstance, as after all Johannesburg is not an immense place, especially when an energetic broker gets on the job in real earnest, then everyone in that particular trade quickly knows when anything out of the common is in the wind, and often exaggeration becomes the rule and not the exception. Another cable was received this week from London reporting that a further small rise had taken place in linseed oil, otherwise quotations remain the same.

TIMBER, CEMENT, BRICKS AND LIME.

The demand for timber from the mines still continues good. The latest cable news shows that it is difficult to get timber ships through from the Baltic, hence an uncertainty in the trade. So far there is no difficulty in obtaining timber in Johannesburg as the demand is not over great, but quotations for forward buying are out of the question. In this respect most of the mines are on velvet as they are now receiving monthly supplies under old contracts at old prices. Some kinds of Oregon timber are out of stock and deliveries from South America are very uncertain, partly owing to freight difficulties and partly because much of the timber has been diverted to the British market. The Johannesburg requirements for South African cement are better supplied, or rather there is no acute shortage even for large lots, as formerly. The reason is that the demand has slackened off, which has enabled the factories to catch up the position. It is said that the new cement works at Slurry, near Mafeking, is now producing cement and the quality more than equals expectations. This means much, very much, for the sound establishment of the cement industry is South Africa against the competition from oversea in the sweet by and

'Phone 4673.

Box 3162.

OSBORN'S

H.C. STEEL

TUBE-MILL BARS.

Write or 'Phone for Stock List.

SAMUEL OSBORN & Co., Ltd., SHEFFIELD and JOHANNESBURG

bye. The blue line industry has fallen off in the demand during November, chiefly from the coast ports, which is a small indicator that the building and its allied trades are having a quieter time throughout the sub-continent. The Queenstown order for sanitary glazed pipes, secured by a Johannesburg firm, is now nearing completion, and no other big order seems likely to be available to fill up the breach. However, the Transvaal glazed pipe industry has become an institution, recognised throughout South Africa, and what is more, much drawn upon.

THE DIAMOND INDUSTRY REVIVAL.

A nice lot of orders is becoming more in evidence from the diamond mines, being led by the Premier mine requisitions. The smaller mines, such as the Robert Victor and others, are talked about as being likely customers in the near future, to our Commercial Exchange. Even Kimberley buys sorting up lines from Johannesburg now and again, under the present abnormal conditions. The names of the different syndicates which have been lying low are cropping up now and again, that even the most versed have to think twice before locating them. This is a good sign for development and more local business. Although the gold mines are the paramount industry, yet the trade position becomes cramped when everything has to depend upon that industry alone. The diamond mines, although scattered, were at one time a good prop to the Johannesburg market, and with the base metal mines thrown in, proved no mean features in making this the great distributing centre it has become.

SECOND-HAND MACHINERY AND MATERIALS.

The ploughing season having been possible after the rains, a number of orders have come in from the country for plough spares and machinery fittings to replace breakages and worn parts, otherwise the agricultural implement trade is dull and quieter. Representatives from the Transvaal coal mines, as well as the Natal coal fields, are more often seen in the Johannesburg second-hand yards. The fact is the ordinary imports have gradually become less, therefore more personal efforts have to be exercised in obtaining spares and other things required to keep the works going at full speed. A very decent order was booked during the week for a colliery, for pipes and pipe fittings, as well as a pump to cope with the water, owing to the rains. In connection with water, enquiries have been made for second-hand tanks, however without much success, therefore the plumbers have received decent orders for new tanks, for various parts. The demand for second-hand building materials is very slow just now.

REVISED PRICE LIST.

Approximate war prices, subject to quick change.—
Mining and building hardware: Iron, imported, round up to 1 in., 30s.; 2 in. to 6 in., 25s. per 100 lbs. Ditto, square, up to 1 in., 27s. 6d.; 1½ in. to 2½ in., 23s. 6d.; 2½ in. to 5 in., 25s. Flats, 3-16 in., 37s. 6d.; all from ¼ in. up, 30s. Angles, ¼ in. to 3-16 in., 40s.; ¼ in., 35s.; 5-16 in. to ¾ in., 30s., excepting 5 x 4 x ¾ in.; mild steel bar, 4d. lb.; drill, 7 lb.; steel plates, 10ft. by 4ft. by 1-16th in., 35s.; ¾ in., by 3-16 in., 32s. 6d.; ¾ in. to 5-16th in., 31s.; ¾ in., up to 30s.; 10ft. by 5ft. by 1-16in., 36s. 6d.; ¾ in. and 3-16 in., 34s.; ¾ in. to 5-16 in., 32s. 6d.; ¾ in., up to 31s. 6d.; intermediate sizes up to 12ft. by 6ft. by 1-16 in., 37s.; ¾ in. and 3-16 in., 34s. 6d.; ¾ in. and 5-16 in., 33s.; ¾ in. and up 32s., all at per 100lb.; hexagon and euphead bolts, ¾ in. diameter to 2½ in., 55s., over 2½ in., 52s. 6d., ¾ in. to 2½ in., 50s., over 47s. 6d., ¾ in., 7½ in., 1 in., up to 2½ in., 45s., over 42s. 6d.; nuts, ¾ in., 10d. lb., ¾ in., 60s., ¾ in., 57s. 6d., 1½ in., 1½ in., 62s. 6d., 2 in., up, 67s. 6d.; washers, all sizes, 45s.; rivets, 3-16 in., 1s. 1d. lb., ¾ in., 5-16 in., 10½ d., 7-16 in., ¾ in., 7½ d., ¾ in., 45s., ¾ in., 42s. 6d., ¾ in. up, 40s. lb.; shoes and dies, 32s. 6d. to 35s. per 100lb.;

rails, £23 per ton; picks, 4lbs., 27s. per doz.; shovels, 32s. 6d. to 50s. per dozen; drill hammers, 5½ d. lb. to 6d. lb.; hammer handles (best American), 14 in., 3s. 6d., 24 in., 7s., 30 in., 9s. 6d., 36 in., 18s., per dozen; metal, anti-friction, 1s. per lb.; galvanised iron, 24 gauge, 6 ft. to 10 ft., 10½ d., 11 ft., 10½ d., 12 ft., 1s.; 26 gauge, 6 ft. to 10 ft., 8½ d.; 9 ft. and 10 ft., 8½ d.; flat galvanised, 18 to 24 gauge, 42s. 6d.; 26 gauge, 36s. 6d., 100 lbs.; floor brads, 40s.; ceiling, 40s.; wire nails, 37s. 6d. to 55s. per 100 lbs.; solder, 50 per cent., 1s. 4d. per lb.; locks, rim, 48s.; mortice, 60s. dozen; barbed wire, 23s. 6d. to 25s. 6d. 100 lb. coil.

Timber: Deals, Baltic, 9 x 3, short and medium, 1s. 1d.; longer lengths, 1s. 2d. to 1s. 3d. (Oregon, 1s. 1½ d.); flooring, 4½ x ¾ and 6 x ¾, 6½ d. to 6½ d. per sq. ft.; do., 4½ x 1½, 9d.; and 6 x 1½, 9d.; ceilings, 6 x ½, 3½ d. to 3½ d. per sq. ft.; Oregon, 4 x ½, 4½ d.; pitch pine, 8s. per cub. ft.; Oregon, 5s. 9d. to 6s. per cub. ft.; clear pine, ½ in. x 12 in., 7½ d. per ft.; 1 in. x 12 in., 8½ d.; teak, small planks, 1s. 9d. per cub. ft.; do., large, 15s. 6d.; jarrah, 9s. 6d. per cub. ft.; poplar, 1 in. x 12 in., 10d.; scantling, 1s. 1d. to 1s. 2d. per ft., 3 x 9.

Bricks, cement, lime, etc.: Cement, nominal, 34s. 6d. per cask; Pretoria Portland, 9s. 3d. per bag; 8s. 3d., truck loads; lime, white, 7s. 9d.; truck loads, 6s. 9d.; slaked, do., 5s.; blue, 3s. 3d.; plaster lime, 4s.; bricks, stock, delivered, 37s. 6d. to 42s. 6d.; wire cuts, 50s. to 70s. pressed, 70s. per 1,000, road transport difficult to obtain; salt and white glazed bricks, £27 10s. per 1,000; tiles, roofing, £17½ square; glazed tiles, 10s. 6d. to 17s. 6d. yard; paving cement tiles, 8s. 6d. yard laid; terra cotta tiles, £15 per 1,000; reinforced concrete columns, 6 ft. plain, 22s. 6d., fluted, 24s.; fireclay bricks, £9½, good average, per 1,000; clay chimney pots, 80s. per doz.; fire clay, 37s. 6d. ton on rail.

Oils, paints, lead, oxides, glass: Linseed, raw 28s. 6d.; boiled, 28s. 6d. per 5 gallons; white lead, 70s. to 72s. 6d. 100 lbs.; turpentine, 49s. 2/4 gall.; 10/1, 54s.; coal tar, imported, 10s. to 12s. 6d. per 5 gallons.; oxide in oil, 35s. to 36s. per 100 lbs. dry oxide, 21s. to 22s. 6d.; S.A. crude oxide, 12s. 6d.; linseed oil putty, 4s. 6d. per 12½ lbs.; bladders, 36s. casks of 100 lbs.; grease A.F. axle, 23s. 6d. to 25s. per 100 lbs.; tallow, 1s. per lb.; White Rose paraffin, 17s. 3d. 2/5; Laurel do., 17s.; petrol, 27s. 6d. 2/4; motor oil, 6s. to 7s. 9d. per gallon; engine lubricating oils, 22s. to 35s. per case; cylinder, 25s. to 40s.; paints in tins, 10d. to 1s. per lb., according to quantity, and if ordered to be mixed, 20 per cent. on pre-war rates. British plate-glass, ¼ in., 3s. 6d.; do., mirror, 4s. 6d.; window, 16oz., 1s. to 1s. 3d. foot.

Chemicals: Mercury, £20 per 75 lb. bottle; bichromate potash, 2s. 6d. lb.; chlorate, 2s. 6d. lb.; permanganate, 7s. 6d. lb.; alum, 4d. lb.; carbolic acid, 6s. 6d. lb.; borax, 87s. 6d. 100 lbs.; cyanide soda, 1s. 5d. lb.; hypo, 9d. lb.; acetate lead, 70s. 100 lbs.; litharge (assay), 70s. (commercial), 55s. 100 lbs.; zinc sheets and blocks, 1s. 6d. lb.; plumbago crucibles, 5d. per number.

Electrical Goods: Lamps, high volts., British, Holland & American, 16s. to 21s. wholesale, and 21s. to 27s. dozen, retail; carbon lamps, 7s. 6d. per dozen; pure rubber flex, 5d. to 6d. per yard; 3/20 coils of wire, 24s.; do., 3/22, 21s.; tubing, 12s. to 13s. 100 ft.; keyholders, 4s. each; round blocks, 3½ in., 3s. 6d. doz.; lamp holder cord grips, 13s. 6d. doz.; switches, 5 amp., 18s. to 14s. doz.; British glass shades, 24s. to 36s. doz.; Bohemian shades finished; porcelain shackles, 14s. 6d. doz.; do., bobbins, 9s. to 9s. 6d. per 100; cleats, 18s. per 100; P.O. insulators, 18s.; motors, 3 h.p., about £28 to £35, new.

Rhodesian Section.

RHODESIAN MINERAL OUTPUT.

Details for October.

WE have received for publication from the office of the Rhodesia Chamber of Mines (Incorporated) the following detailed statement of the mineral output for the month of October, with comparisons and values:—

MATABELELAND

BULAWAYO DISTRICT—

	No. of stamps. treated.	Tons	Yield ozs.	Value £
Abercorn 3 (W. J. Lane)	5	324	98·83	410
Do. (sands)	—	204	16·00	66
Agincourt (Hogg & Co.)	5	200	150·46	624
Amasonia (Rhodesia, Ltd.)	31P	298	666·02	2,761
Antelope G.M. (Rhod.), Ltd.	2BM2P1T	3,854	935·11	3,876
Do. (slimes)	—	3,545	943·72	3,912
Botha L. (W. H. Robinson)	2	60	15·34	64
Bulawayo Main A. (Aberman and Cormack)	5	252	72·11	259
Do. (sands)	—	142	26·88	111
Camp (Carson Mines, Ltd.)	5	629	127·89	530
Do. (sands)	—	410	42·95	178
Carry (Boomerang Syndicate)	5	502	137·88	572
Do. (sands)	—	200	27·68	115
Cecil (Master Cecil Syndicate)	3	100	75·42	313
Confidence (A. D. Hall), September	5	284	119·90	497
Do. do. October	5	270	76·09	315
Coquette (W. H. Robinson), clean up	—	—	16·20	67
Cottage (Cottage Syndicate)	4	190	59·43	246
Do. (sands)	—	160	—	—
Donove (W. K. Early)	2	25	35·69	148
Do. (sands)	—	90	10·63	44
Doris (W. E. Hunt)	4	201	34·07	141
Durban (Durban Syndicate)	2	240	181·70	753
Do. (sands)	—	120	72·92	302
Edward (Warren & Guest)	5	166	42·49	176
Farvie (H. S. Henderson)	5	639	627·37	2,660
Do. (sands)	—	645	62·08	263
Fernando (Trans. & Rhod. Est.)	10 2P	1,955	1,378·86	4,716
Do. (sands)	—	1,955	556·29	2,306
First Chance (Howe & Anthony)	2	180	33·44	143
Flora (H. L. Henderson)	2	200	111·03	460
Frank's Luck (R. Aberman)	5	180	53·14	220
Geelong (M. & G. Hogg), clean up	—	—	14·90	62
Germania (A. G. Hadlingham)	2	113	159·83	663
Godwin B. (F. C. Barrett)	5	280	85·22	353
Great Belingwe (R. C. Boyes)	5	236	112·99	468
Hanover (W. & E. Syndicate)	5	525	115·06	477
Intabanenda (Intabanenda Synd.)	5	43C	97·09	402
Iron Duke (Iron Duke Syndicate)	3	192	116·04	481
Jeffs (Horton & Stewart)	3	130	82·25	341
Jessie (Harrill & Smith)	10	895	164·27	681
Jumbo A. (A. D. Hall)	5	400	124·26	515
Jumpers (J. P. McCay)	5	429	293·13	1,215
Do. (sands)	—	260	38·40	159
Kamel IW. (Edenson & Samuels)	5	184	37·75	156
Kernel (E. Farrer)	5	240	75·06	311
Do. (sands)	—	180	25·62	106
Klondyke (Lunnen & Stiven), sands (September)	—	270	191·11	792
Lone Hand (Armstrong, Furber and Alexander)	5	366	85·04	353
Do. (sands)	—	240	59·41	246
Lonely Reef G.M. Co., Ltd.	20 3T	5,000	1,302·42	5,399
Do. (slimes)	—	5,000	2,711·22	11,239
Long John (Susanna Mines, Ltd.)	2 GR	4,547	537·29	2,227

	No. of stamps. treated.	Tons	Yield ozs.	Value £
Mamba (Nicholls, Bowden and Macdonald)	5	290	83·64	347
Do. (sands)	—	95	17·78	74
Matabele Queens Co., Ltd.	10	1,870	359·57	1,491
Do. (sands)	—	1,870	341·92	1,417
Mission (Emerton & Mathews)	II	123	33·67	140
Monitor (E. K. Jubber)	5	124	53·36	221
Nelly (F. D. Roscoe)	2 II	707	354·92	1,471
Do. (sands)	—	300	112·67	467
New Eclipse (J. R. Stewart)	5 1T	1,400	224·09	929
Do. (sands)	—	700	22·39	93
Nicholson (clean up)	—	—	8·70	36
Old Nic (Chart. & Gen. E. & F. Co., Ltd.)	15	2,287	570·64	2,366
Do. (sands)	—	1,347	140·85	584
Do. (concentrates)	—	97	—	—
Peach A. (Peach Syndicate)	5	392	282·47	1,171
Do. (sands)	—	280	16·18	67
Polar Star (Ettie Syndicate)	3	250	32·77	136
Do. (sands)	—	280	18·16	75
Prince Olaf (K. Johnsen)	5	297	194·52	806
Queens West (Cummings & Berry)	5	655	236·17	979
Do. (sands)	—	498	129·20	536
Rhodesian Queen (Gilpin & Pickles)	5	120	68·23	283
Sable (R. C. Boyes)	(5)	308	41·32	171
Seafield 1E. (Arbrey & Hicks)	5	324	112·62	467
Do. (Undeclared), September	—	—	127·98	533
Star (Romola Nigel G.M. Co.)	5	285	60·18	249
Do. (sands)	—	160	24·48	101
Venus (A. Blumenthal)	3	195	365·92	1,517
Winnifred (C. A. Stevenson), pings	—	—	·80	3
Wolley Dog (Mrs. G. C. Davis)	5	612	358·89	1,488
Do. (sands)	—	368	86·08	357
Other sources (scraps from old plates and machinery)	—	—	40·56	177
Bulawayo district total			17,757·65	73,685

GWELO DISTRICT—

	No. of stamps. treated.	Tons	Yield ozs.	Value £
Aberdeen 1 (Leppington and McConkey)	2	200	134·85	559
Alderman (Williams & Woodger)	5	350	82·44	342
Do. (sands)	—	750	95·28	395
Anniversary (Mrs. R. F. O. Dollar)	2	30	31·90	132
Bell Reef Dev. Co., Ltd.	2B 1T	3,772	1,231·50	5,104
Bonsor B323 (Cornish Syndicate)	10	270	43·40	180
Do. (sands)	—	280	6·86	28
Bonsor B327 (T. Roberts)	10	525	59·58	247
Bonsor B1,372 (St. Amant Synd.)	5	220	36·70	152
Broken Luck (E. Rowe & Bradley)	1Pn	180	14·29	59
Cactus (Renton & Gray)	5	490	56·86	236
Do. (sands)	—	500	70·31	291
Cap (W. Cock)	2	43	13·68	57
Connemara (Connemara Synd.)	20 1C	3,258	85·53	354
Do. (sands)	—	2,088	391·68	1,624
Csardas (Wolfshall Syndicate)	10	586	371·58	1,540
Do. (sands)	—	510	68·85	285
Do. (slimes)	—	76	9·30	39
Dixie (Dixie Syndicate), September	2	175	47·69	198
Do. do. October	—	50	15·09	63
Falcon Mines, Ltd.	36N 3T	19,177	2,910·48	12,439
Do. Copper, £46,492.				
Fed Up (A. Malcolm)	5	155	61·14	253
Gaika G.M. Co., Ltd.	5 1C 1T	2,954	1,150·98	4,834
Do. (sands)	—	3,982	447·56	1,880
Glen Hume (Hume, Withey and Walker)	10	1,230	118·82	493

THE TRANSVAAL GRAPHITE M. & M. CO., LTD

W. M. HUDSON, Managing Director.

Foundry Plumbago.—Flake Graphite.—Pipe Jointing.—"Murrella" Boiler Composition.—Graphite Pigment, etc.

Office: 20, Cullinan Building, Johannesburg. Phone 2560.

BROAD ROBERTS & DODD, C/o Von Brandis & Bree Streets, JOHANNESBURG.

Mathematical Instrument and Mechanical Accessories Works.

Electrical and Surveying Instruments. Motor Engine Parts. Magnetos. Meters and Gauges. Munitions. Mica and Emery Manufactory. All Classes of Light Engineering Work.

Box 4777.

	No. of stamps treated.	Tons	Yield ozs.	Value £
Glen Rosa (Glen Rosa Synd.)	10	986	400·64	1,661
Do. (sands)	—	525	94·32	391
Globe and Phoenix G.M. Co., Ltd.	40 10P	6,434	6,647·23	27,918
Do. (sands)	—	8,313	1,408·66	5,916
Do. (slimes)	—	2,210	355·08	1,491
Do. (concentrates)	—	291	435·46	1,829
Guinea Fowl (Meikle Bros.) (copper plate treated at Falcon)	—	—	3·32	13
Ingersoll (C. T. Uren)	2	15	5·47	23
Ingondomo (F. C. Luxat)	11	720	113·00	468
Do. (sands)	—	520	65·54	272
Invulnerable (A. E. West)	5	70	10·42	43
Leopard (Leopard Trib. Synd.)	5	320	71·21	295
Loyalist (B. Bertoldi)	3	49	36·49	151
Moss (W. M. James)	5	980	389·50	1,615
New Dunraven G.M. Co., Ltd.	5	600	124·20	515
Do. (sands)	—	400	24·60	102
Pondo (F. C. Luxat)	5 1H	1,067	266·11	1,103
Do. (sands)	—	375	70·59	293
Record (Pini & Wearing)	5	218	17·50	72
Renvyle (A. & B. Syndicate)	5	300	22·93	95
Romney (T. Pedlow)	5	90	33·11	137
Rosie (St. Amant Synd.), sands.	—	509	122·82	509
Selukwe Columbia G.M., Ltd.—				
Danga	10 1P	452	119·47	495
Do. (sands)	—	170	45·30	188
Wonderland	10 1P	849	350·89	1,455
Do. (sands)	—	500	133·09	552
Stranger (J. M. Haynes)	2N	424	36·84	153
Tabekwe I. (A. N. Tyrrell)	10	560	138·37	574
Trixie (S. Levin)	10 1P	1,333	415·43	1,722
Do. (sands)	—	1,040	45·36	188
Val d'Or (J. Maleham)	5	257	51·97	215
Veracity (L. R. Evans)	2	200	86·02	357
Do. (sands)	—	120	29·21	121
Wait and See (Hughes & Downes)				
Do. (sands), September	—	100	2·18	9
Do. October	5	300	41·80	173
Do. (sands)	—	240	4·74	20
Wanderer (Selukwe) G.M., Ltd.	4GR	13,680	1,452·15	6,020
Walrus	6	100	34·03	141
Zabonkwe (Holmes & Urquhart)	5	620	151·46	628
Gwelo district total		21,412·96	89,707	

MASIONALAND.

HARTLEY DISTRICT—

Acorn (Anzae Syndicate)	5	480	184·09	763
Do. (sands)	—	324	79·93	331
Alexandra (Alexandra Synd.)	Dolly	5	44·64	185
Arlandzer (Keir & Rooke)	10	970	69·79	252
Do. (sands)	—	970	172·79	716
Baltimore & Virginia (P. A. Enke)	5	175	23·47	97
Brilliant (S. L. Syndicate)	5	146	29·77	123
Do. (sands)	—	76	—	—
Do. (slimes)	—	654	95·92	398
Buffalo (E. A. Begbie)	5	490	82·39	342
Cam and Motor G.M. Co., Ltd.	RP	11,718	3,879·07	16,447
Campania (G. C. Hooper)	3	573	78·87	327
Do. (sands)	—	132	—	—
Do. (slimes)	—	441	—	—
Chadhunt (C. H. Wheildom)	5	460	445·05	1,845
Do. (sands)	—	235	47·51	197
Challenge (J. E. Poulton)	2	73	48·16	200
Cirl (H. F. Wilson)	5	78	24·30	101
Dalny (Macdonald & Sale)	1 C	1,780	49·63	206
Do. (sands)	—	1,780	106·92	443
Dalny 1 W. (Macdonald & Sale)	5	500	59·29	246
Do. (sands)	—	300	44·62	185
Dawn (Arrow Syndicate)	5	571	125·79	521
Do. (sands)	—	324	37·52	156
Dreadnought (W. E. Masters)	5	91	25·29	105
Eiffel Blue (Willoughby's Cons. Co.)	10	1,514	755·39	3,131
Do. (sands)	—	780	40·04	166
Eileen Alannah Mining Co., Ltd.	12 2T	3,513	873·14	3,620
Do. (sands)	—	4,560	1,246·91	5,169
Enney Ext. (E. G. Goodyer)	5	700	125·84	522
Do. (sands)	—	420	40·17	167
Excelsior (Smith & Heard), July	5	91	23·77	99

MINING EXAMINATIONS.

Study for Certificates as Mine Captains, Mine Managers, Surveyors, Mechanical and Electrical Engineers, and Engine Drivers. Private Tuition and Correspondence Lessons, where personal tuition is impracticable. Practical Mathematics and Electrotechnics. E. J. MOYNIHAN, Consulting Engineer, Cuthbert's Buildings, corner of Ellof and Pritchard Streets, Johannesburg, P.O. Box 2061.

	No. of stamps treated	Tons	Yield ozs.	Value £
Fiasco	Kaiser (Banner and Bircumshaw)	5	216	18·84
For Cash Only (Cuba Synd.)	Sept	5	900	41·66
Do. (clean up), October	—	—	—	6·49
Giant Mines of Rhodesia, Ltd.	30 2T	8,800	769·46	3,263
Glasgow Mines, Ltd.	5	400	117·70	488
Do. (sands)	—	210	29·87	124
Glencairn (Pickstone G.M., Ltd.)	5	693	477·79	1,981
Do. (sands)	—	840	114·62	475
Golden Valley (J. Mack)	10	1,019	584·07	2,421
Do. (sands)	—	680	83·44	346
Grampian (Smith & Heard), July	(5)	59	21·86	91
Guelph (J. & M. Davidson)	3	112	32·68	136
Inez (H. C. Fitzgerald)	10	500	38·37	159
Do. (sands)	—	700	56·81	235
Inkermann (I. J. Minnaar)	5	525	278·51	1,155
Do. (sands)	—	430	127·77	530
Jessie (Webster & Beangstrom)	2	227	53·46	222
Just in Time (C. Somerset)	2	170	157·19	652
Kanyemba (Banner & Bircumshaw)	10	640	391·15	1,621
Do. (sands)	—	640	88·25	366
Lex (H. C. Fitzgerald)	5	40	6·24	26
Long (T. H. Long)	2	15	6·22	26
Monte Carlo (Monte Carlo Synd.)	11	180	30·84	128
Mountain Dew (Boomerang Synd.)	5	450	135·57	562
Nutta (S. H. Hemlock)	5	708	59·29	246
Owl (A. Rolfe)	10	1,668	1,542·24	6,393
Do. (sands)	—	1,612	483·26	2,003
Owl Extension (Cribb & Sear)	5	965	259·83	1,077
Do. (sands)	—	828	83·51	346
Pomposo (J. Knott)	2N 1P	341	37·96	157
Revie (R. R. Aitken)	5	900	171·63	711
Do. (sands)	—	700	81·30	337
Seigneyre (Seigneyre Syndicate)	10	656	108·52	450
Do. (sands)	—	600	27·35	113
Shepherds (Phoenician (R.) Co.)	5 1T	820	129·65	537
Do. (sands)	—	820	78·93	327
Thistle Etna G.M., Ltd.	C	1,070	413·01	1,714
Do. (sands)	—	1,266	102·76	426
Venice (Venice Syndicate), Sept.	C	608	94·59	392
Do. do. Oct. ber	—	637	106·90	443
What Cheer (H. Moser)	10	825	216·25	896
Do. (sands)	—	475	47·79	198
White Rose	2	222	18·83	76
Do. (sands)	—	265	27·09	112
Hartley district total		16,610·63	69,299	

LOMAGUNDI DISTRICT—

Alluvial	—	—	140·60	583
Angwa B. (F. L. Standen)	5	820	109·00	452
Chiringa (Chiringa Synd.), sands, September	—	600	15·22	63
Chiringa (Chiringa Synd.), sands, October	—	500	23·07	96
Crescent (treated at Falcon)	—	255	45·04	150
Eldorado Banket G.M. Co., Ltd.	20 1C 0P	4,384	1,867·41	7,843
Do. (sands)	—	4,322	602·81	2,532
Golden Kopje Prop. Mines, Ltd.	40 2T	4,182	327·64	1,376
Do. (slimes)	—	4,182	852·84	3,582
Mediterraneo (Schley & Smith), bal. September	—	—	3·29	13

Lomagundi district total

3,986·92 16,720

MAZOE DISTRICT—

Botha H. (Clarkson & Sons)	2 II	1,250	16·22	67
Do. (sands)	—	800	44·47	184
Chin (Arrow Syndicate, Ltd.)	5 1P	950	75·25	312
Do. (sands)	—	950	36·97	153
Day Dawn (Day Dawn Trib.)	2	82	35·32	146
Do. (sands)	—	70	17·25	72
Jumbo G.M. Co., Ltd.	5	540	190·18	788
Kimberley (Mash.) G.M. Co., Ltd.	8N 2T	4,900	940·90	3,990
Do. (sands)	—	4,900	650·51	2,795
Kingsley Hoard (A. S. Warwick)	5	684	122·18	507
Micky (Micky Syndicate)	2	391	93·45	387
Mitre 8 (E. W. L. Noaks)	2	84	65·70	272
Do. (sands)	—	84	24·91	103
Mildred (Rose & Cooke)	2	126	51·17	212
Moffat (Laing & Marshall)	2	16	14·00	58
Peveril of Peak (Mrs. Southey)	2	30	11·53	48
Promoter 1 (F. C. Croxford)	C	2,460	49·55	205
Do. (B. H. Jones), sands	—	2,030	97·38	404
Rosa (B. G. Byerley)	2	405	155·04	643
Do. (sands)	—	400	45·87	190
Venus (L. W. Southey)	2	55	42·57	176
Vesuvius C. (Cunningham and Allison)	2 1P	756	234·64	973
Xmas (A. Chiappini), sands	—	600	49·62	189
Mazoe district total		3,073·68	12,874	

SALISBURY DISTRICT—

	No. of stamps.	Tons treated.	Yield, ozs.	Value, £
Alluvial	—	—	19·08	79
Alpes (P. Zaffere)	5	119	140·59	583
Do. (sands)	—	150	62·81	260
Arwee (Johnson & Ilands)	3	40	12·18	50
Beatrice (New Beatrice G.M. Co.)	10	116	34·08	141
Ceylon (Ceylon Mine Syndicate), slimes	—	984	80·04	332
Cross-your-Luck (W. A. Hoole)	2	132	20·98	87
Do. (sands), September	—	304	93·95	389
Do. (slimes), September	—	86	—	—
Found A. (Guy's Syndicate), sands, September	—	185	58·05	241
Inyague (P. Maffore)	2	175	26·26	109
Do. (sands)	—	280	21·24	88
Joking (Harrison & Drabble)	2	257	339·84	1,409
Do. (sands)	—	324	188·51	781
Do. (concentrates)	—	—	11·97	50
Joker (R. L. Mann), sands, Sept.	—	140	23·45	97
Joyce (New Beatrice G.M. Co.)	10	232	68·18	282
Do. (sands)	—	200	34·40	143
Mashona (H. S. Plant), September	2	120	19·98	83
Do. do. October	—	80	13·62	56
Mont d'Or (Claxton & Bussell)	5	225	105·84	439
Olympus C. (Olympus G.M. Co.)	5	500	97·96	406
Do. (sands)	—	400	51·07	212
Pens Mozell (Planet Mine Trib.)	10 2P	151	74·00	307
Do. (slimes)	—	151	67·34	279
Planet (Planet Tribute Synd.)	10 2P	936	297·18	1,232
Do. (slimes)	—	936	252·37	1,046
Radnor I. (Radnor Mines, Ltd.)	5 2P	1,128	396·27	1,643
Shamva Mines, Ltd.	56N 9T	45,029	2,551·37	10,716
Do. (sands)	—	25,667	5,774·18	24,251
Do. (slimes)	—	19,986	—	—
Southern Cross (Arab Syndicate)	2	95	37·99	157
Do. (September)	2	158	42·64	177
Trio (Trio Syndicate)	5	450	687·90	2,852
Salisbury district total		11,705·30	48,977	

UMTALI DISTRICT—

Bessie and Gem (J. Buchanan)	5	700	33·63	139
Do. (sands)	—	700	149·51	619
Golden Quarry (H. Pollack)	5	100	18·43	76
Kent Mines, Ltd.	10	1,020	195·53	811
Do. (sands)	—	1,020	226·16	937
Kent (J. H. Hall), sands	—	550	10·45	43
Liverpool 38 (R. G. Snodgrass)	5	740	98·33	408
Do. (sands)	—	320	31·63	131
Lucknow D.B.I.E. (Toronto Synd.)	5	816	116·12	481
Do. (sands)	—	463	102·85	426
Do. (slimes)	—	351	—	—
Odzi (J. F. Kapnek)	5	644	88·34	366
Oriental S. (R. M. Evans), sands	—	270	11·78	49
Pilgrim (Cawood Bros.)	5	500	59·71	248
Quagga (P. Young)	5	230	30·81	128
Virginia 1 (F. Young), sands	—	200	16·65	69
Rezende Mines, Ltd.	70	7,400	757·15	3,213
Do. (sands)	—	3,781	342·66	1,454
Do. (slimes)	—	1,366	135·65	576
Do. (concentrates)	—	130	328·13	1,392
Umtali district total		2,753·52	11,566	

Waterman's Ideal Fountain Pen

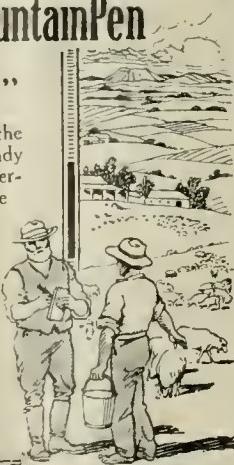
"I'll just take a note of that," and out comes the pocket-book and—no, not the stump of a pointless pencil, but the ever-ready Waterman's Ideal. Thus is secured a permanent record of a matter too important to be trusted to memory.

For outdoor use the Safety type is recommended. It can be carried in any position.

Three types—Regular, Safety, & Lever Pocket Self-Filling.

Of Stationers and Jewellers everywhere.

L. G. Sloan, The Pen Corner
LONDON, ENGLAND.



VICTORIA DISTRICT—

Empress (S.A. Pros. & Con. Synd.)	8	1,460	174·28	722
Do. (sands)	—	800	120·01	498
Do. (slimes)	—	660	—	—
Sunbeam (S. A. Taylor), sands	—	350	14·43	60
Texas (Victoria Mines, Ltd.)	10	750	236·54	981
Do. (sands)	—	700	124·85	517
Victoria district total		670·11	2,778	

(P) Grinding Pan; (BM) Ball Mill; (T) Tube Mill; (H) Huntington Mill; (GR) Gates Rolls; (Pn) Pneumatic Stamp; (N) Nissen Stamp; (C) Chilian Mill.

ASBESTOS.

Bulawayo District—	Tons	Value.
Birthday A. (N. Moore)	79·50	£1,272
Nil Desperandum (E. Machell)	30·75	492
Mashaba 1 (Goddard & Taylor)	3·35	67
Mashaba 3 (August-September)	15·22	228
Victoria District—		
Balmain (P. T. Hoad)	30·90	463
King Asbestos (Rhod.), Ltd.	250·00	4,000
Regina (P. A. Nightingale)	17·17	284
Victoria (R.) Asbestos, Ltd.	187·84	3,005
		615·33
		£9,812

COMPARISONS.

Gold output—	Ounces.
October, 1916	£325,607
September, 1916	322,035
Decrease	
	£3,572
Gold output—	Ounces.
October, 1915 (ounces)	81,161·29
October, 1916 (ounces)	77,970·77
Decrease (ounces)	
	3,190·52

Pittsburgh Steel Company
Pittsburgh, Pennsylvania, U. S. A.

Manufacturers of
"PITTSBURGH PERFECT"

Open Hearth Steel Products

INCLUDING

Galvanized Wire Bright Nail Wire
Annealed Wire Bright Hard Wire
Varnished Wire Bright Soft Wire
Bolt and Rivet Wire
Galvanized Barbed Wire
Wire Nails Fence Staples

Pig Iron, Blooms, Billets, Wire Rods, Hard Spring Coil Wire, Twisted Cable Wire, Telephone Wire, Bale Ties, Steel Hoops, Steel Bands, Cotton Ties and Fabricated Stock, Poultry and Lawn Fencing.

We are prepared to give PROMPT SERVICE, and solicit your inquiries accompanied by complete specifications.

Address

PITTSBURGH STEEL COMPANY
EXPORT DEPARTMENT
EQUITABLE BUILDING
NEW YORK, U. S. A.
Cable Address : "PITTSTEEL"

TWENTY YEARS AGO.

(Being extracts from the *S.A. Mining Journal* of December 5, 1896.)

The English papers just to hand report an important speech on the subject of deep levels by Mr. John Hays Hammond, delivered at the recent meeting of the Consolidated Gold Fields Company. Mr. Hammond is well known as the champion of deep levels, and the general tenour of his remarks is discounted by his previous utterances and by the very able report to which we called attention last week; but he put several facts in rather a new light, and without doubt his speech will do much to convince investors that where the outercrop mines produce well the deeps will do likewise. We need not enter into his remarks upon the regularity of the ore. But two other subjects that he mentions are of the first importance. The first is that the development work should be carried out well ahead of the mill requirements, so that ore reserves may be in hand to provide against the contingency of poor zones. The other is that the extra cost of power required for deep-level shafts should not exceed 3*l.* per ton per thousand feet.

* * * *

THE COST OF PRODUCTION.

It is generally recognised that the gold industry on the Rand is now entering upon a period of transition. "The practice of that region," says one of the latest authorities on gold, "is yet in its formative stage, and is destined to undergo important changes of development. At present it offers a magnificent opportunity for the utilisation of the best experience of the older districts of the world. Now, the older districts of the world have succeeded chiefly because they reduced working costs to a minimum; and it may be argued that any goldfield is successful in proportion as it is in a condition to treat low-grade ores at a profit. In a word, gold-production is an industry—not a speculation; and it cannot be expected that the miner, the investor, or even the speculator will attain the prosperity to which they are entitled unless the costs of milling and cyaniding, the costs of shaft-sinking and development, are reduced to the lowest possible limit."

* * * *

NEW KLEINFONTEIN.

The erection of the new reduction plant at the New Kleinfontein is progressing steadily, and the first 70 stamps (1,050 lbs.) will probably be dropped next month, and the second 70 a month or so later. Development is considered sufficient, as there are some 300,000 tons of ore in hand, which is ahead of mill requirements, for fifteen to eighteen months.

* * * *

OBSERVATIONS ON THE CORRELATION OF THE KLERKSIDORP AND WITWATERSRAND BANKET BEDS.

(By G. A. DENNY.)

The correlation of the Klerksdorp reefs with those of the Main Reef series at Witwatersrand is one that presents many features of exceeding interest and importance, and one that is open to very various shades of opinion. In the present state of our knowledge regarding the intervening section of country, and pending the completion of a scientific geological survey between the places named, I prefer only to adduce certain evidences which make for the ease of identity. It is a matter of great surprise that some of the wealthy financial corporations who hold interests on each of the goldfields named have not been induced to commission competent men to carry out a survey, and determine once for all the relation, if any, existing between the two fields, and the details of the projection. That such a connection will eventually be made there can be no doubt, and it is some matter for regret that it is not now an accomplished fact.

* * * *

NEW CROESUS.

We understand that a complete re-organisation of the methods of working the New Croesus is contemplated by the board, with a view to the reduction of working expenses and a general improvement of the conditions now obtaining. The restarting of the mill is, of course, dependent on the rainfall and the replenishing of the dams, and unless this takes place within a reasonable period other mines will be compelled to suspend milling operations; but what is most needed is an all-round reduction of working costs.

* * * *

TRADE AND INDUSTRIAL NOTES.

The business of the past week shows no improvement in any of the leading lines in mining material or mining consumption, apart from food prices. Merchants are anxious to sell, but buyers are restricting their orders and at the same time lowering their prices, and only in those articles of necessity and consumption is there anything like a free market. The closing months of the year present an uncomfortable contrast compared with the conditions which obtained at the latter end of 1895. The mining industry now probably embraces a greater number of ventures than that of a year ago, the population is greater and the general demand has increased rather than diminished.

* * * *

OCEANA CONSOLIDATED.

The first ordinary general meeting of the Oceana Consolidated Company, Ltd., was held at Winchester House, London, Mr. H. Pasteur presiding. The Chairman said that amalgamation had placed the company in the foremost rank of South African enterprises. It was now largely interested in Rand mining undertakings, but, owing to the rebellion, work on their farms was practically at a standstill. The company's holding in the Pretoria Pietersburg railway was a large one. They had a large interest in Van Ryn Estates and Van Ryn West Companies, also in coal formations in the Ermelo and the Middelburg districts. There were no resolutions or accounts to present; but, provided friendly relations were maintained between the various communities of South Africa, they might well hope for satisfactory results in the future.

NOW READY.

Published July 1, 1916.

Second Year.

Contains all the latest information up to within a few days of publication.

THE S.A. MINING AND ENGINEERING YEAR BOOK 1916.

By S. R. POTTER.

The Standard Reference Work on S.A. Mines.

Price 15/- net.

Post Free 17/-

478 pages. In Cr. Folio, Cloth, Gilt Letters.

Obtainable from the Office of this Paper.

A RECOGNISED INDISPENSABLE WORK OF REFERENCE

For Mining Investors, Mining Engineers,
Mine Managers, Bankers, Stockbrokers,
Solicitors or anyone interested in the Mining
Industry.

A RECORD OF INFORMATION concerning Mining Companies operating in all parts of South Africa. Gold, Diamond, Copper, Tin, and other Mines, Collieries, Exploration, and Mining Investment Companies, arranged in alphabetical order.

SOME PRESS OPINIONS.

"A complete account of the present position and future prospects of South African mines, put on permanent record for ready reference."—"The Star."

"The only authoritative work of reference on South African mining companies produced in this country."—"Rand Daily Mail."

"To holders of Kaffir shares and prospective investors this is an aggregate of authoritative information that has a distinct value."—"Financial News."

Industrial Section.

THE COMING OF INDUSTRIALISM.

Trade Banks and Industrial Research Needed.

THERE are signs that the subject of industrialism in South Africa is at least coming into its own. And it would be extraordinary if it were not so, for all over the Empire, even in India, attention is being directed to the opportunities for industrial expansion possessed by every part in some degree. From the newly-created Advisory Board much is expected, for there is evidence that the Government is at least awakening to the fact that in development is to be found the only means of "broadening the basis of taxation." The Board will re-assemble in the course of a few days for what will be its first business meeting, and the procedure to be adopted and the scope of its enquiries will be then decided. While one cannot expect at this stage that a large amount will be voted for the investigations that must of necessity follow the enquiries of the Board if these are to be of real use, it is to be hoped that a sufficient sum will be provided to enable substantial work to be done. If that is made possible by a grant of money, and if the establishment of an Industrial Bank by the mining houses, as foreshadowed by Mr. Imroth in his speech at the "Johnnies" meeting, becomes an accomplished fact, it will be felt that we have really taken a step forward. There is an absolute necessity for stimulating increased production of all kinds at this time. It is inconceivable that this country will be always "a land of to-morrow, of the day after to-morrow, of next year, sometime, never." The public debt is mounting up, and it must be remembered that our present prosperity is the result of the large sums that are being spent in the country on behalf of the Imperial Government. It is unlikely that we shall experience after the war a slump such as took place in 1908, but to a large extent we are living in a fool's paradise. If, however, the opportunities of the present are properly seized a possible set back may be converted into an advance. In his reply to the Industrial League a few days back, Mr. W. G. Wickham, the British Trade Commissioner for South Africa, gave the local manufacturer some sound advice. Speaking particularly of Australia and New Zealand, he said "that in several cases the development of local industries had been carried so far as to enter on the unprofitable stage. In England particular districts concentrated on certain lines, and in that way were able to turn out a good article at a low price. He thought no country with a small population such as South Africa had should attempt the large variety of quality and price neces-

sary in certain classes of goods. Great Britain was able to do so only because she had a world market. Further, every manufacturer should begin at the top, for if he does otherwise it takes a long time to persuade the buying public that an improvement has taken place. Uniformity of quality was essential." These necessities have been urged constantly, but they need to be reiterated over and over again. Of course our present limited production of raw materials is one explanation of the difficulty of attaining a uniformity of quality in the manufactured article, and that is still another reason for greater development of all resources. A recognition of the value of the services of the industrial chemist is of equal importance. Professor J. A. Wilkinson has lately reminded us that "those countries which, in view of their past achievements, may be reckoned as the premier nations of the world, are making preparations and taking stock of the raw materials of industry within their domains, with the primary object of winning a commercial success, such as will lead to continued national preservation and prosperity." In South Africa "we stand on the threshold of a newly-born country with the raw materials for industry, proved and established in other and older countries, here in plenty. The smallest legacy we can bequeath to future generations is to make some attempt to utilise them." Three years ago, a remarkably useful institute was established in Pittsburgh, U.S.A. It is called the Mellon Institute of Industrial Research. It is an American institute although it was established by a man of British birth. The man who had the idea was Robert Kennedy Duncan, a Canadian. The man who gave the money—£100,000—was Mr. Mellon, an Irishman, who has become the principal banker in Pittsburgh. The purpose of the institute is to make any sort of chemical investigation which may be needed by American manufacturers. It has a staff of sixty chemists. These men are at work solving the chemical problems of business in such varied items as aluminium, fatty oils, laundering, copper, soda, bread, confectionery, paint, yeast, soap, glue, flour, collars, gas, peas, petroleum, glass bottles, linoleum, gum, stoves, and coal tar. The Institute has already taken out more than twenty-five patents for its own investigations. It has helped to solve the problems of forty-seven manufacturers. It has worked out more than twenty new processes which are now in actual operation in American factories. This unique institution is self-supporting. It is not philanthropic in any sense. It is strictly a practical and commercial institution. It does nothing for nothing. A manufacturer who wishes to know more about a chemical process sends a statement

MINING INSTITUTE.

TEACHING CENTRES: JOHANNESBURG AND WITBANK.

Prof. YATES prepares candidates for the following Government Certificates:

MINE MANAGER'S
MINE OVERSEER'S. MECHANICAL ENGINEER'S.
MINE SURVEYER'S. ELECTRICAL ENGINEER'S.

By Class, Private Tuition and Correspondence.

The aggregate percentage passes for the OVER 200 SUCCESSES.
combined classes is nearly 80% St. James' Mansions, Eloff St.

NEW AND UP-TO-DATE FOUNDRY will undertake to supply Castings of every description in Brass, Gun Metal, Phosphor Bronze, and Acid-resisting Metal. Duplicate Orders a speciality.

CENTRAL BRASS FOUNDRY,
49, POLLY STREET,
Quotations on receipt of particulars. JOHANNESBURG

ELECTRIC WELDING CO.,

20, Joubert Street,
C/o Fox Street,

Telephone No. 2661.

JOHANNESBURG.

Latest Patent Process for Welding Iron or Steel, Malleable Cast Iron, Manganese Steel and Steel Castings. New Teeth Welded on Steel Gear Wheels without Softening or Distorting the Wheel. Worn Shaft Journals built up to Original Diameter. Torn Keyways Rebuilt, etc. Numerous Crank Shafts Successfully Welded.

BARFORD & Co., Ltd. (Late Bull & Oehman, Ltd.)

Scientific and Mathematical Instrument Department.

Large Stocks of Theodolites, Levels, Steel Metallic Tapes and General Surveying Appliances.

REPAIRS of Scientific Instruments a SPECIALITY.

Phone 1221. 59, Rissik Street, Johannesburg. Box 4040.

of his problem to the Mellon Institute, together with a certain sum of money to defray expenses. He also names the amount he will pay to the Institute in case the investigation is successful. This is called the bonus. One company is paying £12,000 a year and offering £2,000 bonus for the solution of a bread problem. Another company is paying £2,000 a year for four years for an investigation of crude petroleum. A third is paying £1,000 a year for two years and a bonus of £2,000 for an examination into the qualities of aluminium. No company pays less than £200 a year for the service of this Mellon Institute. We want a vastly increased production of raw materials, and a greater output of manufactured goods. The aim of South Africa should be to raise the value of all her products, whether they are intended for export or for home consumption. This cannot be done without the aid of the chemist and the sooner that is recognised by the producer and the manufacturer the better it will be for both. But the State is also under obligations. Investigation of the value of economic resources benefits the community in general and should not therefore in the main be left to the individual. Up to a certain point and in certain directions the expenditure of public money for such a purpose is not only justifiable but is also essential. Before we can hope to secure capital from oversea we must be able to show the value of what we have to offer. And in other ways, such as the establishment of ample cold storage facilities, and the provision of suitable and sufficient means

of transport both by rail and sea, the State has a duty it cannot avoid. In the report of the Advisory Committee of the British Board of Trade with respect to "trade after the war" it is stated that the value of scientific research in industry, and the desirability of Government assistance in the promotion thereof, was generally recognised by the witnesses who appeared. And that this is intended to apply to South Africa as well as to Great Britain is shown by the fact that the memorandum on the question appeals for "the provision, by the respective Governments throughout the Empire, for larger funds for the promotion of scientific research and training in their relation to commercial and industrial development." Whether the work is done here or oversea is immaterial, the need is present. Mr. Hughes recently stated that in Australia a Bureau of Science was being created, in order that existing knowledge might be applied to industry. At the McGill University in Canada steps have lately been taken to develop the industrial applications of science in chemistry and engineering. Our latent resources are as great and as varied as either of these countries. If we do not wish to be left far behind in the progress all other parts of the Empire are making we must not only increase development at a greater rate than at present, but we must do so on the most profitable lines, which are "to raise the value of all our products to the highest state of efficiency." That is surely an aim worthy of State recognition and support.

Gaika Gold.

The report of the Gaika Gold Mining Company for the year ended 30th June states that the net profit, after deducting depreciation, but before making any allowance for excess profits duty, is £85,111, to which is added £7,624 brought forward. The directors recommend the payment on 9th instant of a final dividend of 2½ per cent., making a total distribution for the year of 12½ per cent., leaving a balance of £7,772 to be carried forward, subject to the decision in respect of the amount which has been claimed from the company for excess profits duty. The ore reserves at 30th June, 1916, were estimated at 89,591 tons, of an average assay value of 13·96 dwts., as compared with 95,570 tons of an average assay value of 14·14 dwts. per ton at 30th June, 1915, showing a decrease of 5,979 tons only on the year, notwithstanding that 37,795 tons were crushed during that period. The expenditure on new machinery, plant, buildings, etc., was £2,683. For the better treatment of tailings a tube mill has been recently installed for the purpose of fine grinding all tailings and treating them in the form of slimes, and when this alteration is in full operation it is anticipated that lower costs and better extraction will result. During the year 37,795 tons were crushed, yielding 21,061·16 ozs. of fine gold of the estimated value of £88,510, in addition to which £1,823 was obtained from

slags treated at the Falcon Mines smelter, thus making the total value of the output £90,333. The working costs and realisation charges for the same period were £51,444, leaving a working profit of £38,888, subject to deduction of depreciation, London charges, etc. The working costs for the year were 26s. 4·67d. per ton, as compared with 25s. 8·56d. per ton for the preceding year. The continued rise in working costs is due mainly to the higher prices which have to be paid for material, stores, etc., owing to the war. No difficulty has been experienced in obtaining ample labour throughout the year.

F. HOPPERT, Only at 86, MARSHALL ST.,
JOHANNESBURG.
ELECTRICAL & MECHANICAL ENGINEERS.
For Magnetas and Electrical Ignitions.
Repairs to Gas Plants and all work requiring the highest skill.
P.O. Box 3503. Phone 3130.

Tell advertisers you saw it in the *South African Mining Journal*.

S. SYKES & Co., Ltd., Johannesburg.
P.O. Box 2303. Telegrams: "PSYCHE."

Mechanical and Electrical Engineers.

REPRESENTATIVES OF

POWER & MINING MACHINERY CO., N.Y.
GYRATORY & JAW CRUSHERS FOR ANY CAPACITY.
ALL KINDS OF MINING MACHINERY.

Rhodesian Branches: BULAWAYO and SALISBURY.

The Week's Meetings.

MAIN REEF WEST.

In the absence of Mr. W. H. Dawe, who recently underwent a serious operation, and who is still indisposed, Mr. A. G. Gill presided at the annual meeting Nov. 24th in Cullinan Buildings, of the Main Reef West, Ltd. There were present Messrs. P. Dreyfus, A. F. Mullins, R. Goldman, H. P. Richter, W. P. Fisher, W. H. B. Franck, J. Munro, R. Richardson, F. W. Baxter, and H. G. L. Panchaud, the share representation being 135,695.

Mr. Gill read Mr. Dawe's speech, which was to the following effect:—The results of working for the past year require to be referred to only succinctly, in view of the detail given in the reports of the consulting engineer and the general manager. The ample native labour supply to which I referred at the last annual meeting was maintained during the past year, when the average number of natives employed underground was 325 more than were employed during the previous year. It is true that during the latter part of the winter we were somewhat inconvenienced by a falling off in the numbers: that was not on account of unsatisfactory recruiting returns, but was the result of a very high wastage—or, in other words, the large number of boys, who had been working from the early part of the year, who returned to their homes at that time. It was most fortunate for us that your company had this good supply of labour, as it enabled the tonnage milled to be increased by 38,160 tons on the figures for the year ended 30th June, 1915, thus bringing the total tonnage crushed up to 307,000 tons. The result of this was that, although the value of the yield per ton crushed was £s. 6.8d. less, the larger tonnage milled helped to effect a reduction of 6.8d. per ton in the working costs. Thus, the total profit of £42,662 was only £8,214 less than that for the previous year. The reduction in the costs speaks well for the management, in view of the increased costs of stores, and other items of expenditure arising out of the war; the comparatively heavy item of development costs, and the important fact that the expenses and difficulties of working are materially increased on account of the scattered nature of the ore reserves. Another result arising from the supply of native labour was an increase in the percentage of ore broken in the stopes by hand labour, from 59.9 per cent. to 85.1 per cent. Your consulting engineer points out that of the tonnage sent to the mill only 57.4 per cent. was drawn from the ore reserves, the remainder having been obtained from reclamation and footwall main reef, from the better portions of blocks which were originally classed as unpayable, and from development faces.

Disappointing Development.

This fact is reflected in the estimated ore reserves, which, in spite of the disappointing results obtained from development during the year, show a decrease of only 29,320 tons, end. on the 30th June last, stood at 386,960 tons of an average value of 5.7 dwts. over 51 inches as at the 30th June, 1915. Turning to the question of the development, you will have noticed that, exclusive of shaft sinking, stations and ore bins, the footage amounted to 12,896 feet, which is a very high figure compared with the milling capacity of your plant. Of this total of 12,896 feet, 8,312 feet disclosed reef, but the ore exposed by this development is estimated at only 159,100 tons, with a

value of 5.8 dwts. over 50 inches. I think the best method of showing how exceedingly disappointing the results obtained were is to submit the following table, which gives the total distance driven on each of the lower levels, and the footage payable:—

East Shaft.—Main Reef Leader—

	Total	Total footage	Footage	over
	distance on	driven.	reef payable.	age
East and west.
13th level ...	1,570	1,375	595	
14th level ...	1,615	1,510	120	
15th level ...	95	35	nil.	

West Shaft.—Main Reef Leader—

	13th level east	13th level west	15th level east	15th level west
	1,015	1,520	460	260
	805	1,280	240	235
	485	170	55	nil.

A considerable amount of crosscutting for, and driving on, the south reef has been done, but has shown nothing better than short isolated stretches of payable values at any of the points prospected.

In regard to the results obtained in drives on the main reef leader during the first four months of the current year, viz., from 1st July to 31st October, I submit the following summary:—

	Value	Footage	Footage	over
	driven.	sampled.	in.	48
East Shaft—				
14th east ...	132	60	4.0	
15th east ...	124	94	2.2	
15th west ...	148	116	5.5	
West Shaft—				
8th west ...	96	73	5.2	
12th west ...	164	103	8.3	
13th west ...	193	116	4.2	

Difficulties to be Faced.

In view of these figures it seems unnecessary to endeavour to emphasise the difficulties with which we are faced. Last year, when discussing this question, I pointed out that the results then submitted appeared to justify the belief that the policy of steadily driving ahead and opening up the property in depth as quickly as possible should ultimately meet with its reward, and I also gave details of the work which was in hand in connection with the east and west subsidiary incline shafts. But, after a period of 12 months, we find that the results have continued to be most disappointing, and, consequently, the importance of following the policy referred to has become even more necessary. In the concluding paragraph of his report the consulting engineer summarises the position when he says that every endeavour is being made to expedite reef exposures in the deeper levels at both shafts, in the hope that a better zone may be found in the near future, and thus relieve the present unsatisfactory position.

The capital expenditure for the past year amounted to £22,104, of which £21,597 was incurred on shaft sinking, stations and underground equipment, chiefly in connection with the east and west subsidiary inclines, in which good progress was made. We must continue the sinking of these shafts as vigorously as possible, and, consequently, the capital expenditure connected with this work is likely to be greater this year than it was during the last. On the other hand, it is probable that the profits for the current year will not equal those of the past year, for two reasons: in the first place, the ore reserves indicate a lower recov-

ery; and, in the second, as time goes on it becomes more difficult to maintain the monthly rate of tonnage crushed, owing to decrease in the quantity of the reserves and the consequent smaller number of available stope faces. The profits of the past two years, small though they were, have, with the assistance given by the debenture-holders in agreeing to the suspension of the redemption of debentures for three years, enabled us to accomplish a large amount of work. Had the results of development been only reasonably satisfactory your company would have been in a fairly sound position; but obviously the exigencies of the position are materially increased when, on the one hand, it is necessary to incur heavy expenditure in connection with shaft sinking and development, whilst, on the other, the difficulties of maintaining the profits are increased through the causes I have already referred to.

The financial statements show how the company stood at June 30 last, but those figures can be brought up to date, and on October 31—four months after the close of the year—the balance to the credit of the appropriation account, after allowing for a due proportion of the special war levy, debenture interest, and Miners' Phthisis Compensation Fund, etc., was £35,884, which was practically in cash.

Redemption of Debentures.

The postponement of the redemption of debentures was for a period of three years. This period will expire in September, 1917, but the interest on debentures is being paid in the usual manner, and naturally that constitutes a considerable strain on the company's limited resources. I have dealt with this question at some length, because I am anxious that you should realise that the position is a serious one. If we should be fortunate enough to obtain better results from our development work the future prospects of your company would naturally be improved proportionately; but even in that case it would follow that some time would have to elapse before the better values could become a material factor, from a milling point of view. Therefore it appears to me that in any case it will be necessary for us to further consider the company's position before the close of the current financial year. In the meantime I would point out that the work in connection with the opening up of the company's property, which was outlined when the debenture holders were asked to agree to a postponement of the redemption of debentures, has been faithfully carried out, and I can only hope that development during the next few months will give more encouraging results than those we have had during the last few years. In connection with the question of employees going on active service, we have been restricted, by the company's position, in the amount of assistance we have been able to render in that direction; still, we have done what we possibly could, and at the present time 26 employees are on active service, either in Europe or German East Africa. It is with very deep regret that I have to refer to the death of Major C. H. Mullins, V.C., C.M.G., who was a director of your company for several years. Major Mullins was so well known and highly esteemed in Johannesburg that the extent to which his loss was felt by his co-directors will be readily understood. In conclusion, I wish to express the appreciation of my co-directors and myself of the invaluable services rendered, by the consulting engineer, Mr. D. Wilkinson, the assistant consulting engineer, Mr. P. M. Newhall, and the manager, Mr. J. E. Healey, in dealing with a proposition which demands the closest supervision, and is the cause of considerable anxiety.

The report and accounts were adopted.

CONSOLIDATED MAIN REEF.

The annual meeting of the Consolidated Main Reef Mines and Estate, Ltd., was held at Cullinan Buildings on Nov. 24. Mr. A. G. Gill presided in the absence of Mr. W. H. Dawe, who recently underwent a very serious operation. Mr. Dawe had hoped to attend the meeting, but his medical officer would not consent to this doing so. Also present were Messrs. P. Dreyfus, J. Morrisse, R. Goldman, E. J. Renaud, A. A. Auret, J. Eurus Evans, A. F. Mullins, F. P. Lynch, H. H. McNeill, W. H. B. Franck, W. Rockey, A. Pratt and H. G. L. Pancaud. The number of shares represented at the meeting was 175,659.

In moving the adoption of the report, the chairman (reading Mr. Dawe's speech) said.—Dealing in the first place with the milling operations, we get several satisfactory results from a comparison with the figures of the previous year. The tonnage milled was increased by 48,129 tons, and the total profit at a figure of £162,931, shows an increase of £24,666. The increased tonnage dealt with was the direct outcome of a good supply of native labour, the average number of boys employed on underground work having been 450 in excess of the average for the previous year. This was reflected in the percentage of ore stopped by hand labour, which rose from 41.4 per cent. to 69.5 per cent. The average value of the yield per ton milled showed a decrease of 9.55d., but this was rather more than offset by a decrease of 11.01d. per ton in the working costs. As is pointed out in the consulting engineer's report, the costs for last year were the lowest in this company's history, as the figures of the tonnage milled and the total profit earned were the highest. The reduction in the costs is particularly satisfactory, in view of the increased cost of stores, and other expenses caused through the war, and I think the management is entitled to an expression of appreciation from you in this connection. Concerning the question of working costs, our expenditure on development has always been a heavy item, as the footage developed has invariably been very large when compared with the milling capacity of the plant, and, as many of you will probably remember, for a long period this work gave but a very inadequate return in the way of ore reserves. Fortunately however, the results of recent years have been far more satisfactory. On the 30th of June last the ore reserves stood at 856,740 tons, of an average value of 7.5 dwts. over an estimated stoping width of 48.2 inches, thus practically maintaining both the tonnage and value of the reserves as at the close of the previous financial year.

Development Results.

In regard to the development results you will notice from the consulting engineer's report that whilst no work was done from the east incline shaft during the past year, the exploitation of the eastern section of the mine was not neglected, as a considerable amount of work was carried out from the vertical shaft, although, unfortunately, the results were very disappointing. The main reef leader values in the western portion of the property were generally satisfactory; but the results for the small amount of development work which was done on the south reef were not encouraging. A point is made by the consulting engineer of the good position which the mine is in to proceed with development work, and the fact that this posi-

tion will be further improved by the sinking of the west subsidiary incline shaft. At the last annual meeting I dealt at some length with the question of future development, and outlined the work which it was hoped we should be able to carry out by the 30th June, 1917. If you will excuse reiteration I will enumerate the chief points of the programme approved by your board. This included the cutting of new engine chambers for the subsidiary incline shafts at the vertical shaft and at the west shaft, and the equipment of these inclines; the sinking of the incline at the vertical shaft for 1,000 feet; and at the west incline for 250 feet; and this work it was considered would put the mine in an excellent condition for the rapid development of the lower levels. The programme also included items of surface equipment; and the total estimated capital expenditure in connection with the same, to the 30th June, 1917, was £93,986, towards which we had an amount of £16,739, unexpended capital. During the past year the amount spent on account of this estimate was £40,005. A portion of this expenditure was met by the sum of £16,379 unexpended capital already referred to, and the balance of £24,626 was provided for out of the year's profits. As I have already mentioned, the estimated capital expenditure involved in the work planned was £93,986. As we expended £45,000 during the past year, we have still to meet the unexpended balance of £53,981. Given a continued good supply of native labour, it is hoped that the work which thus sum represents will be completed during the current year. If that be the case, and assuming that the present rate of profit be maintained, the provision of funds to meet the capital expenditure will necessitate a small reduction in the rate of the dividend. I think it as well to mention this probability, for although we hope to complete our programme during the current year, we may not be able to do so, in which case the whole of the amount mentioned would not be spent during that period, and then, if the present rate of profit were maintained, probably no reduction of dividend would be necessary.

Work Going on Well.

But at present the work is going on well, and, reviewing the question from every standpoint, I think you will agree that the most desirable position would be to get the work completed within the specified time, as you must realise the importance of the rapid development of the lower levels of the property. At the last annual meeting this question was dealt with very fully, as well as some other points in connection with the policy which is being followed by your Board. There would be no excuse for me if I were to tax your patience by going over ground which has been already covered. If, however, there are any points connected with this question which you think I have not made sufficiently clear, I would suggest a reference to the proceedings of the last annual meeting of the Company, as I feel sure that the statement then made, together with my remarks to-day, will give all the information that can be required. There is just one question in the Consulting Engineer's report to which I would briefly refer, namely, that good progress has been made, particularly in connection with the subsidiary incline at the foot of the vertical shaft; also that some preliminary work has been carried out for the subsidiary incline which will be sunk in the western portion of the property. Since the close of the financial year, to the

31st October, the development results on the Main Reef Leader are as follows:

Level.	FROM WEST SHAFT.			
	Feet driven.	Feet sampled.	Stope width.	Assay value.
	Ins.	Dwts.		
21. West ...	129	129	48	*2·5
22. East ...	153	153	48	7·1
22. West ...	145	138	48	6·3
23. East ...	141	89	48	10·3
23. West ...	174	156	48	*8·6

* With Main Reef.

* Or for 130 feet with Main Reef 77 ins., 6·6 dwts.

FROM VERTICAL SHAFT.

24. West ...	182	120	48	9·4
25. West ...	255	255	48	8·7
26. East ...	97	97	48	0·1
26. West ...	153	153	48	0·1

Reference to the financial statements, or to the summary of the Appropriation Account in the directors' report, will show you that we contributed the sum of £6,469 to the Special War Levy during the past year; this is the first time that this item has figured in the Company's accounts. The contribution to the Miners' Phthisis Compensation Fund amounted to £2,691, against the sum of £5,324 for the previous year. I do not think there are any other items which require special notice, as the amount of the capital expenditure has already been mentioned.

You will be asked to confirm the dividends, Nos. 15 and 16, each of 6½ per cent., declared for the past year. In connection with the war, you will have seen from the directors' report that 68 of the Company's employees are on active service with the Forces, either in German East Africa or in Europe—a fact which speaks for itself with sufficient eloquence to render any further reference unnecessary. It is with great regret that we have to refer to the fact that three of the Company's employees were killed in action, namely, Lieut. G. H. Medlicott and Messrs. H. W. Garton and R. Cross, and I feel sure that you will join with me in extending to their relatives our deepest sympathy in their sad loss. Your directors have to record with deepest regret the death of one of your auditors, Mr. J. P. O'Reilly, who had been connected with your Company since its inception in 1896. To fill the vacancy they appointed Messrs. Ferryman and Goldby as joint auditors of the Company, and you will be asked to confirm this appointment.

The report and accounts were adopted, and the appointment of Messrs. Ferryman and Goldby as auditors was confirmed.

NEW MODDER.

The 19th annual meeting of shareholders in the New Modderfontein Gold Mining Co., Ltd., was held on Nov. 29th, in the boardroom, Corner House. There were present: Messrs. E. A. Walters (chairman), W. T. Graham, S. C. Black, J. H. Ryan, A. F. Mullins, F. Raleigh, J. E. Jones, J. Andrew Cohen, E. M. Hyman, Dr. F. Brotherton, C. Meintjes, J. R. Nicholson, B. H. Davis, T. H. Chapman, H. H. McNeill, B. Moses, G. Sonn, A. G. Gill, S. G. Hobbs, H. A. Boyd, J. H. Barry, and S. C. Steil. The representation was 84,215 shares out of the total issue of 350,000 of £4 each.

The Chairman said: Gentlemen.—You will have made yourselves thoroughly familiar with the exceedingly gratifying information regarding the position of your company that is conveyed to you in the report and statements of account for the year ended June 30 last, which have been in your possession for some time. In fact,

they speak for themselves in an entirely satisfactory manner, and my remarks can therefore be quite brief; at any rate, so far as concerns the financial results that were achieved during the period referred to. The net result of the year's operations, after providing for donations, miners' phthisis contribution, etc., was £766,235, which, added to the balance unappropriated at the beginning of the year, viz., £353,183, and absorbing the small amount of £76 on account of forfeited dividends, gave as available on appropriation account a total of £1,119,494. This sum was dealt with in the following manner:—The net expenditure on capital account for the year amounted to £149,967; direct taxation paid to Government was no less than £116,401; we distributed two dividends totalling £455,000, and the balance unappropriated and carried forward at July 1, 1916, was £398,126. Of this last-named balance £221,192 were in the form of cash on deposit and current account, £20,000 were in the new Union 5 per cent. Loan, and the remainder consisted of cash assets. I would add here that the amount of cash invested in essential stores has again required to be materially increased during last year. The increase is naturally of a temporary nature only, and is, in fact, a protection against the possibility of irregularity in shipments of mining supplies. As soon as the general outlook justifies our doing so we shall allow stocks on hand to decrease, with the consequent proportionate benefit to our actual cash position.

Increased Tonnage Milled.

The general mining and milling operations during the period under review which produced the financial results I have set out have been quite clearly put before you in the report that you have received, but there are one or two points of particular interest to which I would like to draw your attention. The tonnage milled for the year, at 635,000 tons, showed an increase of some 24,000 tons, and in fact as you will observe we averaged 53,000 tons per month. It is to be noted here that certain small renovations to our plant as a whole, which were completed towards the end of our financial year will enable a further slight improvement to be shown in the current year's milling, which I hope will average 54,000 tons a month. The average yield throughout the year was 40s. 10d. per ton milled, which was made up of 82 per cent. from the ore reserves and the remaining 18 per cent. from the mining of upper leaders, reclamation and development work, etc. It was possible in practice to reduce the stoping width to 61 inches, with the resultant beneficial effect upon the grade. In addition to this satisfactory feature a careful investigation of stoping results again showed us that we obtained from the blocks rather more gold than called for by the block valuations, which are clearly on conservative lines. Sorting was maintained throughout the year at rather over 16 per cent., and the percentage of extraction in the reduction works was good. As regards working costs throughout the year, which averaged 17s. 3d. per ton, it will be apparent to you that the steady increase shown is attributable to the abnormal conditions under which we are working, due to the war. I describe them as abnormal because of the very marked increase in the cost of all stores and materials and the considerable other expenditure that results from the payment of war allowances, etc. In point of fact, seeing the conditions generally resting upon the world as a whole today, our working conditions should be described as abnormally fortunate. Finally, the working profit per ton averaged 23s. 7d. for the year. As regards the results obtained from similar operations since the close of our financial year—i.e., for the four months ended October 31st last—the tonnage milled has averaged 54,175 tons per month and the profit £63,266 per month. We can now turn our attention to the development work that has been carried out, and to make the picture as clear to you as possible I will refer first of all to this work as carried on during the financial year we are reviewing, together with its result

upon the ore reserves, and then bring your information up to date as far as possible as to the result of the work effected during the four months since the close of the financial year.

Eight Million Tons Ore Reserves.

During the twelve months ended 30th June last development operations were carried on energetically for the greater part of the time except for a period of about four months when the permanent equipment (air mains and electric cables) was being installed in the circular shaft. The total footage driven, sunk and raised over the entire mine for the year was 19,876 feet, or an increase of 1,700 feet over the preceding year. The results in payable tonnage exposed by this work were extremely good, as we developed 1,763,860 tons of an estimated value of 11 dwts. per ton. In addition, we completed the work necessary for the valuation of other ore which had been partially exposed during the preceding year, and the final result was that our payable ore reserves, including shaft pillars, etc., of a tonnage of 536,000 tons worth 6.5 dwts., as re-estimated at 30th June last, amounted to just over 8,000,000 tons of an estimated value of 8.4 dwts. per ton. This is an improvement as compared with the previous year of fully 2,000,000 tons, whilst the value of the whole of the reserve has been increased by $\frac{1}{2}$ dwt. per ton. I do not know that there is much point in giving you the separate figures of the payable tonnage in reserve in the circular shaft section, as the whole mine is now linked up, but I do so in order to co-ordinate to some extent the information that I gave you in this connection when speaking to you twelve months ago. You will remember that I then said that our estimate of the partially developed payable ore in the circular shaft section was 1,600,000 tons of an average value of 6.6 dwts per ton. The position at the end of last June was that, of the 8,000,000 tons of 8.4 dwts. value in reserve that the mine has as a whole, the circular shaft section accounts for just under 2,000,000 tons, of which the average value is 7 dwts. You will observe, therefore, that the improvement in the value of the development in this section that I indicated might take place as the levels were extended farther east and west has occurred, and especially has this been in evidence in the case of the 13th and 14th levels—i.e., the bottom levels of the mine—which are now very considerably extended and continuing to disclose good values. The 11th and 12th levels, which are in poorer values, have as yet not been so far extended as the two to which I have just referred. Two desirable features in connection with the development of the mine at depth are the increased reef width and the fact that on the western side of the circular shaft the existence of payable upper leaders to a substantial degree has been disclosed.

July to October.

Since the close of the financial year, that is during the four months July to October inclusive, we have been in a position to push the development work, particularly in the circular shaft section, at a far greater speed than we had anticipated. We have, in addition, after many years delay, been able to resume active sinking operations at the No. 2 incline shaft, which will develop a large portion of the western section of your mine which has hitherto remained unexploited. I would add here that in addition to the recommencement of sinking operations at this shaft, in which considerable progress has been made, we have also started driving the 12th level both east and west of the shaft, and the results obtained to date are distinctly encouraging. The average value of this particular work on the 12th

level to the end of last month in this section of the mine has been 400 inch-dwts. For the four months of the current year, therefore, we have achieved a footage of 3,243 feet per month, or, in other words, more than double our normal footage. We intend to keep up the development work in this extended scale until the end of next month, when development operations in the circular shaft section will be curtailed, and we shall revert to a normal footage. It is clear that as we had the native labour available and, further, were not engaged in making all the necessary arrangements for the running of a new plant, we were well advised to push ahead with development operations on the excess scale that we have effected; and, as I say, we shall continue that rapid rate of progress until the end of next month. There is, however, an economic limit to excess development operations, and I feel that we have reached that limit with an ore reserve that will certainly be 9,000,000 tons at 30th June next under normal working conditions. This tonnage will stand in our books at not over 1s. per ton, including shaft sinking. You will bear in mind, also, that during the last three years we have added to our ore reserves no less than 3,500,000 tons. Our position in this respect, gentlemen, is therefore one of extraordinary strength and able to meet with ease the requirements of the enlarged milling plant when completed—namely, 94,000 tons per month.

The New Plant.

And now I want to give you as much information as lies in my power regarding the state of delivery of the units of our new plant. You will remember that in addressing you a year ago I said that although it was impossible to give a close date as to when the plant would be ready, we hoped, if fairly favourable conditions were present, we should be able to commence crushing operations about the middle of 1917. Those favourable conditions were not present, and we shall therefore not have the plant ready by the date mentioned. Neither can I to-day, unfortunately, give you an exact date, but I will give you some indication of the efforts that we have made to get the machinery delivered, and the position generally as we see it to-day. You will be aware that practically all the British manufacturers of machinery, with whom are placed the orders for our plant, are now what is known as "controlled firms" and are engaged in the manufacture of munitions. Therefore our orders, naturally and very rightly, take secondary place and can only be proceeded with piecemeal and when opportunity occurs. Earlier in this year our corporation's consulting mechanical and electrical engineer, Mr. Izod, proceeded to England in order to inspect the prevailing conditions generally himself and to attempt to co-ordinate our requirements as far as possible. Without going into unnecessary detail, I would say here that he did all it was possible to do, and his work was very helpful to the company; and I take this opportunity of placing on record the company's appreciation of the energy and ability which he displayed on your behalf in this connection. As a result of his visit we were able to get certain sections of the work completed and delivered out here, much of the work that could not be completed has been shipped here, and is being finished locally, and the remainder of the necessary units, completed or uncompleted, will, barring unforeseen accidents, be shipped from Great Britain during next month, or the month after. What has not been able to be finished at home will be completed here. I can state, therefore, that Mr. Izod is definitely of the opinion that if shipment of the portion of the plant remaining at present in Great Britain is satisfactorily effected by, say, January or February, 1917, the plant will be erected by the end of 1917, or a delay of six

months only on the date I hoped it would be completed when advising you a year ago.

Financial Policy.

This brings us naturally to a consideration of the financial position of the company in respect to the payment of the cost of this new plant, and to the further question of the policy of the board as regards the distribution of dividends. When addressing you last year I made it plain, I think, that our policy was to continue the payment of dividends at the same rate, viz., 26s. per share per annum, until the new plant was completed and in service. I said, too, you will remember, on the assumption that the plant would be ready in the middle of 1917 we estimated that, on the basis of dividend distributions I have just mentioned, we should have paid for the new plant, and have either no debt at all, or one of comparative insignificance. Since that time, as you will readily understand, conditions have become still more abnormal as regards the cost of new equipment, and freights, insurance, and labour costs in connection with construction have gone against us to an appreciable degree. A year ago I informed you that our estimate of the additional cost of the plant attributable to the war was, as far as we could see, £50,000. To-day that amount must be increased, I think, by probably another £50,000, although I cannot be too definite on that figure until we have seen whether freights, etc., go against us still more during the next three months, and whether the cost of completing certain sections of the plant which I have already informed you may be carried out here will add to the total cost to any further extent. Assuming, however, that we are able to finish the plant and complete its erection by the end of 1917, my estimate given you a year ago as indicating the cash position of the company as at June, 1917, will apply to December, 1917, i.e., we shall at that date have our plant completed and erected, and have neither debt nor capital commitments of any amount to a company such as this.

This assumes, of course, that the payment of dividends on the same basis as last year will be continued till the end of next year, and on this matter it would be well for me to make a few comments. The policy with which this company originally set out, namely, that practically a new mine and a new equipment should be paid for out of profits, can, I think, very well be described as a policy of considerable heroism, seeing the magnitude of the expansion that is being effected. I am firmly convinced, however, and I know my colleagues agree with me, that it was, and remains, the soundest policy in the interests of all. It has, however, called for considerable patience on the part of shareholders, and will continue to require that patience for probably a few months longer than we had hoped. Shareholders have seen the very substantial profits that this company has earned, they have realised the enormous strength of the ore reserve position which has been created, and they very naturally look for increased profit distributions. I have received a few letters from European shareholders, and have been interviewed by one or two shareholders resident here on this subject of the dividend distribution. Their point has been that, seeing the further unavoidable delay in the erection of the plant, they felt some small increase in the dividend distribution might be made. As representing very large shareholdings in the company, I thoroughly realise their point, and I would say that I am inclined to think that the policy of the board as regards the dividend distributions might require modification if there were any appreciable delay beyond the situation as I described it to you a year ago. But that really is not the case, and I need not labour the point further. The difference of six months, I feel you will agree, does not justify an alteration of the sound policy regarding dividend distributions upon which we agreed last year.

Now, gentlemen, that completes my review of your affairs, and it is a great pleasure to me to be able to put before you a statement which I think represents a unique position in gold mining both as regards the magnitude and the value of

your ore reserve position and the clearly indicated much enlarged profit-earning capacity of your mine in the very near future. The year has naturally been a very difficult one for all those closely connected with the work of the company, and the response to the call for active service has been, as was expected, of a very ready nature on the part of our employees. I deeply regret to say that three of our men have fallen in the service of their country, three are prisoners, three are missing, and 11 are suffering from wounds. We offer our respectful sympathy to the relatives of those men. And then there are the men who, for one reason or another, were unable to go, and have carried on the work. Much self-sacrifice has been called for from these men, and much additional work to all of them, and to their manager, Mr. Miles Sharp; the consulting engineer, Mr. Stuart Martin; and the official staff generally your thanks are due for the loyal and very efficient manner in which they have carried out their increased duties. I now beg to move the adoption of the report and accounts for the year ended 30th June, 1916. (Applause.)

Mr. S. C. Black seconded the motion.

Mr. J. Andrew Cohen.

Mr. J. Andrew Cohen said: I have much pleasure in associating myself with the remarks that have fallen from the chairman, and at the outset I should like to congratulate Mr. Wallers for being in a position to place such a satisfactory condition of the company's affairs before shareholders. After so exhaustive a review, there is but little one can add, without traversing the ground so ably covered by you, sir. There are, however, one or two points to which, with your permission, I should like to refer, as I think one cannot too strongly emphasise the importance of satisfying shareholders on matters intimately associated with the company's future prospects. Your review of the development, supported by the reports of your technical advisers, discloses a position almost unique in the annals of gold mining on these fields, on account of the great strength of the ore reserves, which you foreshadow will be in the neighbourhood of 9,000,000 tons by next year. The persistency of the good development disclosed at the lower levels of the circular shaft, both east and west, as also on the 12th level of the vertical shaft, has fully justified the optimism to which I gave utterance last year. I think I am correct in stating that only 46 per cent. of your company's property has been either worked or developed, consequently in looking into the future one must realise that there is an area equal to approximately 700 claims, bounded by three of the richest mines in the far East Rand, still to be attacked. It has been foreshadowed that, owing to the satisfactory position of the ore reserves, development in the circular shaft will be suspended towards the end of the year, the wisdom of which is, in my opinion, unquestioned; is, although no standard of limitation has been laid down on these fields as to the maximum number of years a mine should be ahead of the mill, it appears to me that we have reached a stage where money spent in this direction might be conveniently set aside for the purpose of increased profits, as, according to present calculations, the mine, by the early part of next year, will be practically nine years ahead of the mill based on a milling capacity of 90,000 tons a month. Meanwhile, I gather that the normal development, both in No. 12 and No. 2 vertical shafts will be continued, so whichever way one looks at the position we arrive at a conclusion that it does not pay—and perhaps less to-day than ever on account of the increased costs due to the war—to continue excess development. As a matter of fact, during the past three years the reserves have been increased by over three million tons, at a cost to the company of over £150,000. To continue, therefore, on these lines, I venture to suggest would be a mistake. Perhaps one of the most satisfactory features is in the fact that the latest assay results from the 13th and 14th levels of the circular shaft have disclosed highly satisfactory ore, which in itself is a defi-

nite pointer as to what may be expected from the lower levels of this vast property.

Future Dividends.

Concerning the financial position of the company in relation to future dividend declarations, I have been asked by a body of shareholders in the Union, representing quite an important holding in the company, to express their views in connection with the present rate of declaration, and in doing so I should like to state that, whilst it may be arguable from their standpoint that a more liberal distribution should be made on account of the excellent profits earned during the past financial year, I am bound to state that a good case has been made out, from the company's point of view, by the remarks that have fallen from the chairman to-day, as to why there should be no material increase until such time as the new plant is running. I share the feeling of those investors who look more in the direction of seeing an increase in revenue than appreciation in capital, particularly at a time when living expenses are on the increase. The larger issue, however, must not be lost sight of, namely, that a company which in the not too distant future will be producing profits in the neighbourhood of £1,000,000 sterling per annum, should not deplete its cash resources to the extent of starting off the new plant with a debt. Besides, there are factors which have to be taken into consideration to-day which in the ordinary course of events would not have arisen. I refer in particular to the difficulties attending the smooth running of the industry during this great war, and the effect the cost of supplies must necessarily have on a mine of this magnitude. It cannot be argued otherwise than that shareholders have exhibited a degree of patience, and provided the programme as outlined by the chairman in regard to the completion of the new plant is fulfilled—and on this point there does not appear to be much doubt—I venture to think that they can look forward to considerably increased dividends with the utmost confidence. It might be meet to point out that within a period of 10 years from the date of its first declaration this company has distributed £2,980,000 in dividends—more than twice the amount of its issued capital. What further arguments, therefore, need I advance to convince shareholders that they are partners in the finest gold mine of the far East Rand? I now beg to support the adoption of the report and accounts. (Applause.)

Pertinent Questions.

Mr. J. E. Jones said he should like to take the opportunity to congratulate the chairman on the management of the mine. He should also like to ask for a little further information on a few points. The chairman had stated that the policy of the management was to curtail development in the circular shaft after the end of the year. Could he give an estimate of the effect that would have on the profits of the company during the forthcoming year?

The Chairman: What effect it will have after the increased milling plant is in operation?

Mr. Jones: No, what the immediate effect will be. Secondly, he thought shareholders would be very glad to know what the company had spent in making allowances to members of its staff who had gone to the front and those dependent on them. And, thirdly, there had been persistent rumours lately that some of the mining companies might in the course of a few months find great difficulty in maintaining necessary stores, not entirely on account of the difficulties of shipment, but on account of the difficulty in obtaining supplies. Perhaps the chairman could reassure them on that point.

The Chairman's Reply.

The Chairman said, in reply, that the cost of the development in the circular shaft section had been met out of capital account and therefore its stoppage would have no effect on profits. Profits would remain the same in either case. As to the total amount paid by the com-

pany as war allowance they had paid out last year in round figures £4,500. The other question raised by Mr. Jones as to whether they were likely to have any difficulty in maintaining supplies of stores apart from any shipping difficulties that might occur was a more difficult one to answer, because, of course, it was impossible to forecast the duration of the war. But he thought he was on safe ground in saying definitely that assuming reasonable shipping facilities were continued there was no probability of the industry suffering from any lack of essential supplies. As a matter of fact the industry as far as essential supplies were concerned, was in an extraordinarily fortunate position. It had as a general rule at least seven months' supplies in hand.

The motion for the adoption of the report and accounts was then put and carried.

Messrs. R. W. Schumacher and W. T. Graham, the retiring directors, were re-elected, and the auditors, Messrs. C. L. Andersson and Co., and Deloitte, Plender, Griffiths, Annan and Co., were re-appointed, and their remuneration for the past audit was fixed at 250 guineas each.

NOURSE MINES, LTD.

The 20th ordinary general meeting of shareholders of the Nourse Mines, Ltd., was held on No. 29th in the board-room, Corner House. In addition to Mr. H. C. Boyd, chairman, who presided, there were also present Messrs. H. A. Read, F. H. Barry, S. C. Stiel, W. T. Graham, B. Moses, S. C. Black, A. Spring, E. J. Renaud, J. L. Jourdan, A. F. Mullins, A. P. Richter, F. Raleigh, H. Nonse, and W. H. B. Frank, representing 476,646 shares out of a total issue of 827,821.

The Chairman, in moving the adoption of the report and accounts, said: Operations generally proceeded on an increased scale during the 12 months ended 30th June last, with which the report before you deals. The development footage was greater by some 2,300 feet than that of the previous year, and the tonnage milled increased by about 61,500 tons, with a decrease in working costs of 1s. 1d. per ton milled. Owing, however, to a recovery per ton, after allowing for increased gold realisation charges, of only 2s. 4d., the net profit for the year, after allowing for sundry revenue on the one hand, and contributions under the Phthisis Act and donations on the other, was reduced to £114,756. Of this, expenditure on capital account absorbed £4,042, and taxes, including the special war levy, £12,942; while the two dividends declared of five per cent. each amounted in all for £82,782., leaving an increased balance of £127,929 to be carried forward. The technical reports give the usual full information regarding the past year's work in the mine. You are aware that the low recovery has for some time past been a cause of grave concern. The grade having failed to respond, as was hoped, to the various efforts made to improve it, and realising, as was mentioned at the last annual meeting, that a considerable amount of the ore, especially main reef, included in the reserve showed at best but a small margin of profit, the test mentioned in the report was made of the main reef in the western part of the mine by milling it only for a month at the west mill. As a result, it was decided to eliminate a large amount of the lower grade ore from the reserve—which, in consequence, was returned at the close of the year at just under 2,170,000 tons of an average value of 6.2 dwt. per ton—and to concentrate milling operations at the Deep mill, gradually raising its capacity to 50,000 tons monthly, the maximum tonnage, that is, of reasonably clean ore which it is considered can economically be

supplied by the mine. The last under 500,000 tons developed during the past year averaged 6.6 dwt. per ton, or over a dwt. more than the average for 1914-15. Generally speaking, the better exposures were obtained in the South Reef in the eastern part of what may be termed the old mine, and in the main reef leader in the centre of the South Nourse section, on which at the close of the year it was possible to record that the indications were more encouraging, both as regards values and percentage of payability. At 30th June last there were just over 30,000 tons of an average value of 5½ dwts. developed in the South Nourse, of which roughly half was south reef, averaging 5.2 dwt., the remainder being divided about equally between main reef at 5.1 dwt. and main reef leader at 6.5 dwt. per ton.

Area of Development.

During the current year practically all the driving has been done on south reef and main reef leader. The better values continue in the former in the eastern section and the improvement is equally noticeable in the latter in the South Nourse, on which during the last four months 1,350 feet in all have been driven averaging 14 dwts. over 28 inches, the lowest drives to the east of the main incline showing appreciably higher values. Of the 10 headings at present being driven on this reef in these lower levels one, till recently, was unpayable; now all are disclosing payable ore. Undoubtedly there is a marked change for the better in the prospects of this important section of the mine. The transfer of the necessary material from the west plant and its erection at the Deep was completed at the end of last month. The machinery and buildings left at the west plant are being gradually disposed of. All expenditure in connection with these alterations has been met out of working costs; this, together with the necessarily reduced tonnage during the transition stage, accounts for the high working costs which have obtained during the past three months. Against this the gold recovered from the dismantled plant has gone into current revenue. Although results have thus been abnormal, the mine grade has responded well to the altered conditions of working, and the management is satisfied with the results so far of the somewhat drastic steps which have been taken. In addition to eliminating tonnage from doubtful sources every effort is, of course, being made to mine as narrow and clean as possible, and for this an adequate complement of hammer boys is necessary. More must be obtained before the 50,000 tons can be milled monthly, but a gradual improvement in this respect is looked for. In addition to the casualties mentioned in the manager's report, we have, with deep regret, to record that Lieut. W. Nicklin, Lieut. E. E. Brannigan, Sergt. B. S. Mackay and Pte. E. A. Good have been killed in action, while seven others are wounded, missing or prisoners of war. To the relatives of all those who have fallen or suffered in the service of their country we offer our respectful sympathy. We have further to deplore the death since the report was issued of Mr. J. N. Webb, who had been one of the auditors of this company for many years. The board wishes to express its appreciation of the services rendered by Mr. Stuart Martin, Mr. Lawrie, and the staff generally, during a difficult and trying period. I now beg to move that the report, balance sheet and accounts for the 12 months ended 30th June, 1916, be received and adopted.

The report and accounts were adopted. The meeting re-elected Mr. F. Raleigh, who had been appointed to fill the vacancy caused by the resignation of Mr. R. W. Schumacher, as a director, and the retiring directors, Messrs. A. G. Gill and W. T. Graham, were also re-elected.

Messrs. C. L. Andersson and Co., and Mr. H. J. Lamb were re-appointed auditors.

SOUTHERN VAN RYN DEEP.

The annual meeting of the Southern Van Ryn Reef G.M. Co., was held in the board-room, Exploration Buildings, No. 29. Mr. W. K. Tucker and others present included Messrs. W. Bleloch, W. J. Gibson, W. E. Frames, M. Langkilde, F. E. Ryvas, S. Sanger, C. Broad, Starling, and F. Millan, the shares represented amounting to 75,000. It was emphasised in the directors' report and by the Chairman and other speakers that according to Mr. Frames, the consulting engineer, and Mr. Hallimond, mining engineer, the reefs struck in the company's boreholes were the same as those worked in the New Modder, Van Ryn, and the other great mines of the far East Rand.

In the course of a statement dealing with the company's operations, Mr. Frames said:—The work being done at present on your property is of a prospecting nature, and is being carried out by means of a diamond drill. The definite object is to locate the reef sub-outcrops under the horizontal mantle of coal and Dwypka measures, which so far have been proved not to exceed 64 feet in thickness. This policy is largely governed by our limited resources at the present moment, but later, when more capital is available, shaft sinking will be resorted to. It is considered advisable therefore under present circumstances to first locate the reef by drill, as near the sub-outcrop as possible, before shaft sinking is undertaken. Previous to my undertaking the supervision of the work on the 12th October, 1916, the company had put down two completed drill holes, Nos. 1 and 3, and another (No. 4) which had reached a depth of 1,196 feet. The latter has been continued to 1,564 feet and stopped in shale. From the records of the company sectional drawings of the strata passed through have been made, and these are herewith submitted. On comparing these sections it will readily be seen that Nos. 1 and 4 passed through the same strata at widely sparred points, and in both cases reached the reef identified by Mr. Bleloch as the Van Ryn Reef. The assay values were, unfortunately, poor in both cases.

Assays of borehole cores do not give any reliable guide to values in the Van Ryn Reef. It has been abundantly demonstrated that the gold lies in areas of enrichment. In Springs Mine nearly 55 per cent. of the development shows under 2 dwts., and it is quite obvious that an infinitesimal sample like a borehole core taken haphazard is rather more likely to contain poor values than rich ones. In No. 1 drill hole the shale was struck at 625 feet and in No. 4 similar shales were encountered at 1,550 feet. In the latter hole at 1,367—that is, 183 feet above the shale—a series of leaders with quartzite bands separating them were passed through a total thickness of 67 inches. One section of core of 16½ inches averaged 5.6 dwts., and the highest assay was 8.2 dwts. over 5½ inches. The leaders and quartzites mentioned above are characterised by their dark colour, and the presence of spheroids of carbon and concretionary (so-called "Buckshot") pyrites. These carbon and buckshot leaders cut in this No. 4 borehole are similar in character and in the order in which they occur to those at the New Rietfontein Mine—vide Mr. C. Baring Howood, Vol. XII., Page 87, Trans. Geo. Society, S.A. I am informed that similar leaders are now being worked at the Van Ryn Mine, but have not seen them personally. I intend to examine these in the near future as their definite identification with the leaders cut in this No. 4 borehole would have an important bearing on the eventual identification beyond question of the Van Ryn Reef series in this southern area.

Encouraging Values.

The values disclosed by assay of the cores of these leaders are encouraging and when the sub-outcrops are definitely located, they should be opened up.

In No. 3 drill hole the strata passed through is comparable with the Nigel section underlying the formations cut in Nos. 1 and 4. Support is lent to this view in the shale struck at 594 feet, which—in its fineness of material and structure—is like that underlying the Nigel Reef, and the reef itself is identical in character with the Nigel. At the shale contact 46 inches of reef alternating with bands of quartzite was struck. One section of 21 inches gave a value of 4.75 dwts., the highest assay showed 13 dwts. over $3\frac{1}{2}$ inches. As borehole results these values when considered with the usual thickness of the reef can be considered as satisfactory.

The angle of dip disclosed by the bore-holes I find to be about 30 degrees, and considering that boring has definitely located three gold-bearing reef horizons whose sub-onterops are only about 60 feet from the surface, the prospects of the property—in my opinion—are equal to any of the undeveloped areas of the far East Rand.

In moving the adoption of the report the chairman remarked on the care exercised by the directors in the operations on account of the fact that only a certain amount of money was available every month. Their operations at any time might prove of such a satisfactory nature as to result in a greater demand for investment in the property and which would enable them to increase the speed at which they might hope to develop their property. The chairman went on to speak with enthusiasm of the prospects of the property, which he could not see were any less satisfactory than those of any other property of similar size on the far East Rand. On the south-east, and more particularly the south they had properties like the Nigel, and the Sub Nigel, which had the same characteristics as Modder B. and Springs Mines.

In conclusion, Mr. Tucker again expressed his confidence that the property would be found as valuable as any property of similar size on the far East Bank.

Mr. Bleloch, in seconding the motion, briefly reviewed the financial history of the company in order to show, how difficult it had been to bring the enterprise to its present stage. They had spent a matter of £10,215. of which £5,091 odd had gone in claim licences, while also they had had to pay heavy charges under the Transvaal Gold Laws in the shape of registration of the company, stamp duties, share certificates, etc. The position was thus: For every pound they had spent with a view to proving the property and locating the reefs something like 25s. to 30s. had been handled in taxation.

Proceeding, Mr. Bleloch said if the property were run by one of the big houses with unlimited capital there would be practically no difficulty, but they would not be acting honestly, if, when approaching an investor, they did not explain their financial position and also point out the liabilities under the existing laws. Most people found it hard to say: "I will put in £50 or £100," knowing full well the possibility of the money being absorbed to meet the exactions of the mining laws.

However, they had overcome many of the disabilities and to-day they had sufficient capital resources to keep the property going for more than two years. Continuing, Mr. Bleloch appealed to all present to help the company not only because it was a great public enterprise, but because of their certainty of making a big profit by doing so. They were succeeding in raising more capital and to-day, bearing in mind the great difficulty with which they had been faced, they had every reason to be satisfied with the position. Their assays were low, but 10ft. away they might be better. In their case the reef was dipping at a fairly low angle—in the speaker's opinion 33 degs. They found the public paying as much as 8s., and 10s. a fortnight ago for the right to call a Daggafontein share, whereas their shares were down to a ridiculously low figure. He was confident, however, public opinion would change and they would get strong and adequate support in this country. Under the financial scheme adopted in December last they could increase their capital up to £415,000, and if they struck high values there would not be much difficulty in getting money under this scheme. £25,000 with them, however, he thought, would be sufficient to enable them to undertake such development, at any rate, as would induce other investors to come in at very much higher prices and on better terms than they could expect to-day. The speaker went on to criticise the want of support for such ventures by the banks.

The report and statement of accounts were adopted.

**JOHANNESBURG BOARD OF
EXECUTORS.**

The 27th annual ordinary general meeting of the shareholders of the Johannesburg Board of Executors and Trust Co., Limited, was held in the board-room of the company, 97a, Commissioner Street, Johannesburg, on the 29th November. Mr. Llewellyn Edwards presided, and there were present, either personally or

by proxy, Messrs. S. J. Wilks, C. H. Barclay, D. F. Gilfillan, Walter S. Webber, R. Niven, H. Curtis, A. Howat, G. A. Jones, J. E. Neale, W. H. Thorne. Estate of the late G. C. K. Bennett, J. T. Goldsbury (manager), A. H. Robertson (acting secretary). There were represented 10,401 shares out of a total issued capital of 25,000.

The Chairman, in moving the adoption of the report and accounts, said they disclosed a position of remarkable strength and solidity, which was summarised in the statement that "the company has assets valued at £39,000 and has no liabilities." It would be natural for those unacquainted with the board's affairs to ask how it came about that a trading company could have no liabilities. The explanation was simple and entirely satisfactory to all the parties concerned. It was that all clients' moneys were, as received, placed to the credit of a separate trust account in the bank, where they remained until they were either remitted to the client or were otherwise disposed of according to his instructions. The security thus accorded to clients was absolute. Their moneys at all times lay at their instant disposal. That the company's clients approved of this system of administrating their affairs was demonstrated by the steadily maintained increase in the volume and paying character of the board's business. This was reflected in the profit and loss account, which showed a credit balance for the current year of £3,015, being an increase of some 25 per cent. upon that of the previous year. The directors, in dealing with the available balance of profits, amounting to £8,729, suggested paying a dividend of 8 per cent., and increasing the reserve fund to £10,000. They would then carry forward to the new profit and loss account a credit balance of £1,229. That would doubtless meet with approval. The provision which had been made for possible loss or depreciation was considered ample, and was probably in excess of anything which may be required in those connections. The depletion of the office personnel by the absence of men on active service had been serious, and increasingly heavy work and responsibility had had to be borne by the manager, Mr. Goldsbury, and his remaining assistants, to whom the thanks of the shareholders were due for the able and effective manner in which they had carried out their arduous duties.

The report and accounts were adopted. On the motion of Mr. D. F. Gilfillan, seconded by Mr. C. H. Barclay, the directors' recommendation to pay a dividend of 8 per cent. was adopted.

Mr. S. J. Wilks, the retiring director, was re-elected. The auditors, Mr. H. F. Watson and Messrs. Alex. Aiken and Carter were reappointed.

Users or buyers of
Disinfectants, Germicides, Bleaching Agents, etc.
MUNICIPALITIES, RAILWAYS, MINES, WATER WORKS, LAUNDRIES,

NEW ELECTRO CHEMICAL PROCESS.

A Proved Success. Local Products. Cheap and Highly Effective.

CONSULT —

HOLMAN JAMES, 11, National Bank Buildings, Simmonds St., JOHANNESBURG.
P.O. Box 5685. 'PHONE 4429.

Engineering Notes and News.

ELECTRICAL SYSTEM OF THE RAND POWER COMPANIES, WITH SPECIAL REFERENCE TO METHODS OF OPERATION AND EXPERIENCE.—II.

[By BERNARD PRICE, M.I.E.E., Assoc.M.Inst.C.E., Past-President, S.A.I. of E.E.]

Load Characteristics.—Fig. 1 is a skeleton map showing the power companies' area of supply and the towns and railways within it. The black discs represent consumers taking power from the power companies, and those having white centres the mines (other than those supplied from the three privately-owned stations already mentioned) which are not at present connected to the power companies' system. The area of the circle in each case is proportional to the consumer's maximum demand, and the circles which surround the black discs represent the increased demand which such consumers would take if completely electrified. The areas are only approximate, but serve to indicate the geographical distribution of existing and possible load. Johannesburg is situated in the centre of the area, with a white population of 134,000, and a municipal electrical undertaking having a peak load of about 11,000 k.w. and an annual output of about 28,000,000 units. Other towns, in order of size, are Germiston, Boksburg, Roodepoort, Benoni and Springs, all of which municipalities take bulk supply from the V.F.P. Co. The State Railways also take supply for power and lighting in the goods yards at Germiston and Johannesburg. A few industrial consumers are connected to the system, but the supply taken by the mines represents almost 99 per cent. of the total electrical business.

TABLE I.—MAXIMUM DEMANDS AT SUB-STATIONS.

*Maximum demand. k.w.	Number of sub-stations.
0 to 100	13
100 to 500	19
500 to 1,000	13
1,000 to 1,500	7
1,500 to 2,000	9
2,000 to 2,500	6
2,500 to 3,000	5
3,000 to 3,500	5
3,500 to 4,000	2
4,000 to 4,500	2
4,500 to 5,000	2
Over 6,000	1
<hr/>	
Total 84	

*All the larger consumers take supply at two standard pressures from transformers installed in the same substation, and in some instances a mining consumer is supplied from more than one sub-station. The above figures for demand represent the sum of the two non-simultaneous maximum demands recorded at the two pressures for a given substation, the figure in each case being the maximum number of kilowatt hours taken at that pressure during any one of consecutive hours during the month.

Table I summarises the maximum demands of the various consumers, and it will be observed that out of a total of 86 consumers one demands over 6,000 k.w., five demand over 4,000 k.w. and no less than 39 over 1,000 k.w. It will be clear, therefore, that the area is typically one which demands large quantities of power at a relatively small number of points distributed over a relatively small but elongated area.

Location of Generating Stations and System Lay-out.—One of the factors which has contributed in greatest measure towards the successful evolution of large power schemes has been the development of the steam turbine. Apart altogether from its relatively low capital and operating cost, this type of prime mover has removed all difficulty in the parallel running of machines or stations and the requisite plant capacity may therefore be distributed over an area to secure the most economical lay-out which local conditions will permit.

Extract from paper read before S.A.I. of E.E., full report of which, with illustrations, will appear in next issue of *Journal* of the Institute.

(To be continued.)

Industries and Labour.

The latest report published by the White Labour Department in respect of industries in which there is a demand for labour shows:—(a) Johannesburg.—Engineering trades: All branches in the engineering trades are exceptionally busy, and there is no difficulty in competent fitters, turners, and moulders finding employment. Mining: Good miners are always in demand. There are still a few vacancies for strong, healthy lads over sixteen years of age as apprentices in the Government Miners' Training School at the Wolluter Gold Mine. (b) Cape Peninsula.—Engineering: Vacancies exist for turners, boilermakers, fitters, moulders, and blacksmiths. Printing: Cylinder and letterpress machinists and also coloured boys for cropper machines are in demand. Clerical occupations: There is a demand for competent and reliable male clerks. Shopfitting and show-case making: First-class joiners are required. Sheet metal working: Practical tinsmiths, sheet metal workers and girl canister makers are in good demand. Tanning: There is a vacancy for a foreman currier. (c) Pretoria.—Farming occupations: There are a few vacancies at the Government Settlement Farm at Modderfontein for suitable men. Building trades: A first-class plasterer is required. Domestic occupations: There is a continual demand for nurse girls, housemaids, and cooks. Messenger boys: Smart lads of sixteen to seventeen years of age are in demand. (d) Durban.—Engineering trades: There is a demand for boilermakers, fitters, and electricians. Printing: Binders, rulers, and machinists, also one stereotyper, are required. Carpenters: There are vacancies for these in the South African Railways.

Box 3807.

'Phone 5892.

DELTA METAL

H. ALERS HANKEY

Sole Agent.

P.O. Box 3901.
Phone 3552.

CASTLE CHAMBERS,
134, Fox St.,
Johannesburg.

The Scientific Instrument Works.
WM. C. LINDEMANN,
Assoc. S.A.S.M.T.

Mining Theodolites and Survey Instruments a Speciality.
All kinds of Mechanical and Electrical Engineering Work Undertaken.

HADFIELDS Ltd.

WORKMEN
EMPLOYED,
ABOUT 6,000.

Hecla & East Hecla Works, Sheffield, England.

WORKS
AREA OVER
110 ACRES.

SOLE MAKERS OF

Hadfield's Patent "ERA" Manganese Steel

The SUPREME MATERIAL for
The Wearing Parts of Stone Breaking and Ore Crushing Machinery, Tramway Trackwork, Mining Wheels, etc.

COMPLETE STONE BREAKING AND ORE CRUSHING PLANTS.

MINING REQUISITES

of all kinds, including Wheels and Axles, Rollers and Frames, Pulleys, Pedestals, Shoes, Dies, Balls, Grizzley Bars, Crushing Rolls, Jaw Faces, Cones, Concaves, etc.

Head Office for South Africa:

46 & 47, CULLINAN BUILDINGS, JOHANNESBURG.

Phone 5900.

Tel. Add.: "HECLA."

Box 1009.

STORES, DENVER, TRANSVAAL (Adjoining Denver Station).

Bulawayo Agents—

WHITMORE & JACKSON,
17 & 18, Agency Chambers.

Salisbury Agents—

P. PEECH & Co.,
Angwa Street.

Natal Agents—

THOS. BARLOW & SONS,
Smith Street, Durban.



Have you ever considered the friction load
certain forms of packings put on the rods?

Indiarubber and cotton duck packings not
only produce friction, but because of their
nature they cannot carry the proper lubricant

"PALMETTO" Packing keeps the rod well
lubricated by the graphited grease that is
constantly fed to it from each separate
strand.

If your rods are working on hard friction-producing
packings let us send you a working sample of
"PALMETTO"

without charge, in
order that you may know the im-
portance of using a packing that does
away with rod friction—it also
increases the life of the packing.

GREENE, TWEED & Co.,

Sole Manufacturers,

109. DUANE STREET, NEW YORK.

Carried in Stock by

BARTLE & Co., Ltd., Johannesburg.

E. W. TARRY & Co., Ltd., Kimberley, Salisbury & Bulawayo.



THE QUESTION OF PULP ELEVATION.

To the interested onlooker it is a matter of some surprise that engineers responsible for mill design have not been able to agree upon the most economical method for elevating wet pulps. The controversy between centrifugal pumps, on the one hand, and belt-and-bucket elevators, on the other, is still alive, while advocates of air lifts and piston pumps are still pointing out the merits of these devices. In general (according to the New York *Engineering and Mining Journal*), it may be said that those engineers brought up under the South African influence mostly favour the centrifugal pump, while those under the American influence incline toward the elevator. The air lift, as a pulp elevator, does very well in some instances, but it has limitations that exclude it from a consideration of the problem in general. The limited ability of the air-lift mechanism, combined with its submergence requirement and its rather high power consumption, confines its use to those instances where the head is not great. Some years ago there was a great deal of talk in favour of the triplex power pump for elevating pulps, but one does not hear so much of it at the present time. Apparently the wear caused by fine ore particles was such that the power pump was unable to meet the requirements so far as endurance is concerned. As between the centrifugal pump and the bucket elevator, to which the controversy is practically limited now, something may be said for each type. The centrifugal pump is cleaner and easier to operate, whereas the belt elevator is probably cheaper to install. It comes down to a question of final cost, however, which is the critical point of disagreement. Theoretically, it would appear that the belt-and-bucket elevator is more economical. Its power requirement must be less than that of the centrifugal pump, since only sufficient power is required actually to lift the weight of the pulp to be elevated, plus, of course, the small amount lost in transmission. The belt elevator is practically a balanced device, the weight of the belt and bucket used in lifting pulp at any moment being counterbalanced by the empty buckets and belt on the down side of the elevator. In addition, it is not difficult so to design an elevator that its bearings may be out of reach of pulp, and they may be of a type such as to reduce friction loss to a minimum. With centrifugal pumps, on the other hand, in addition to the weight of the column of pulp lifted, there is the high friction loss of heavy pulp in pipe and the loss of efficiency due to imparting motion to the pulp under conditions where clearance is required.

Again, the centrifugal pump is essentially a high-speed machine and therefore not economical of power. Its bearings may be protected from attrition by pulp particles, but this results is neither easy nor sure. Moreover, there is high wear on the pump shell, or its lining, due to the attrition of rapidly moving ore particles. Theoretically, at any rate, the balance of argument seems in favour of the elevator, although as usually built it is a messy and uninteresting piece of machinery. It is to be hoped that engineers will, before long, take up this question and settle, once for all, the doubt as to which is the most efficient appliance for elevating pulps.

Capetown Electricity Supply.

The Capetown Electricity Department's returns for the quarter ended September 30 show a serious falling-off in revenue, although the number of units sold shows a progressive increase. The increase in sales, however, chiefly represents power units, e.g., increased units sold in September, 277,475; increased units sold for power and Railways and Harbours, 275,809—the increased revenue from which was only £778. The decrease in revenue is due partly to the closing of the bars owing to troops passing through the city. A further cause for the shortfall is the introduction of half Watt lamps, which enable brilliantly lighted premises to obtain the same light at half the cost. At present the half Watt lamp is not supplied in small sizes, and therefore the ordinary householder is not greatly affected; but if these lamps come into common use, a further decrease in revenue must be expected, as happened in 1905-6, when the metallic filament lamp was introduced. As a result of the foregoing, the probable revenue for the year 1916 will be greater than the estimates by approximately £4,000, whereas the expenditure has exceeded the estimate by £7,500, and, as a result, the contribution to rates will be short by approximately £3,500. Several requests have been received for particulars of second-hand electrical plant available for sale, and as the present time would appear to be opportune for selling, they have appointed a sub-committee, to consider with the Acting Electrical Engineer the question of the sale of disused plant from time to time.

Swaziland Tin.

The following are the results of the operations of this company for the month of October, 1916:—Concentrate recovered, 32·6 long tons; estimated profit (taking tin at £180 per ton), £1,397; add adjustments in respect of previous shipment, £159; total, £1,556.

Box 3807.

Tel. 5892.

NO MORE AIR LOSSES.

**Pressed Steel
Bronze-Seated**

ROCKWOOD UNIONS.

Rustless. - Airtight.

Tested to 1000-lbs. per sq. in.

H. ALERS HANKEY - - Sole Agent.

FRANK E. NOTT, Private Detective.

P.O. Box 1587. 80 & 81, PERMANENT BLDGS. Telegrams: "SLEUTH"

**Divorce, Slander, Watching, etc. Delicate negotiations in all parts
of the world. Consultations Free.**

JAMES WEST & CO.

**CERTIFIED MINING AND MECHANICAL ENGINEERS,
GEOLOGISTS AND METALLURGISTS.**

**Consulting Specialists in all branches of Diamond Mining,
Washing and Recovery.**

Formerly of De Beers Consolidated Mines, Dutoitspan, Wesselton Mines, Koffyfontein Mines, Premier (Transvaal) Diamond Mining Co., New Eland Diamonds, Ltd., etc., etc.

**186, Stock Exchange,
JOHANNESBURG.**
Box 4253. Telephone 3659.

Consolidated Main Reef Mines and Estate, LIMITED.

(Incorporated in the Transvaal.)

DIRECTORS' REPORT

For the Year ended 30th June, 1916.

Submitted to the Eighteenth Ordinary General Meeting of Shareholders, held in the Company's Board Room, Cullinan Building, Johannesburg, on Friday, the 24th November, 1916, at 11 a.m.

To the Shareholders,

CONSOLIDATED MAIN REEF MINES & ESTATE, LTD.

Gentlemen,

Your Directors beg to submit their Report, together with the Reports of the Acting Consulting Engineer and the General Manager, as also the Financial Statements for the year ended 30th June, 1916.

PROPERTY.

With the exception of the sale of the freehold of certain stands in the Maraisburg Township, there has been no change in your Company's property holdings since the last General Meeting.

MINING OPERATIONS.

The Reports of the Acting Consulting Engineer and the General Manager give full details of the work accomplished during the year under review.

The tonnage crushed during the year shows an increase of 48,129 tons, with a corresponding improvement of £24,666 in the profit earned.

The payable Ore Reserves show an increase from 855,600 tons, valued at 7.53 dwts. over 48.5 inches, to 856,740 tons, valued at 7.51 dwts. over 48.2 inches.

FINANCIAL.

The Appropriation Account may be summarised as follows:—
 Credit Balance brought forward from previous year £69,874 1 3
 Profits earned during year 162,931 1 1
 Owners' share of Claim Licences, Interest and
 Sundry Revenue 9,651 3 0

£242,159 5 4

From which have to be deducted:—

Government Tax on Profits for previous year	£12,174 4 0
Audit Fees for previous year	315 0 0
	<u>£12,489 4 0</u>
Capital Expenditure ..	24,621 13 6
Dividends Nos. 15 and 16 declared during the year ..	115,545 10 0
Special War Levy ..	6,469 10 9
Directors' Extra Remuneration in accordance with the Company's Articles of Association ..	1,700 0 0
Contribution to Miners' Phthisis Compensation Fund ..	2,694 16 10
Sundry Items ..	1,087 8 5
	<u>152,415 19 6</u>
Leaving a balance to be carried forward of ..	<u>£77,854 1 10</u>

The following items of Capital Expenditure have been incurred during the year:—

Buildings ..	£3,970 11 10
Machinery and Plant ..	11,961 11 2
Shafts ..	23,566 2 4
Dams and Surface Works ..	506 10 6
Investments ..	1,666 11 4
	<u>£41,671 10 2</u>

Less—	
Proceeds of Sale of Freehold Stands in Maraisburg ..	£425 0 0
Stable Equipment written off ..	211 17 6
	<u>669 17 6</u>
	<u>£41,001 12 8</u>

Of this total, a sum of £21,621 13s. 6d. has been written off against the year's profits, the remainder being provided from the balance of £16,379 19s. 2d. of the funds secured under the amalgamation scheme in 1909.

EMPLOYEES ON ACTIVE SERVICE.

Sixty-eight of the Company's employees are on active service with the Forces in German East Africa and in Europe, and your Directors have to record with deep regret the loss of two of these, viz., Mr. H. W. Garton and Mr. R. Cross, who were killed in action.

DIVIDENDS.

On the 31st December, 1915, your Directors declared an interim dividend (No. 15) of 1s. 3d. per share (6½ per cent.) for the first half-year, and on the 30th June, 1916, a dividend (No. 16) of 1s. 3d. per share (6½ per cent.) was declared for the second half-year, making 12½ per cent. for the year. You will be asked to confirm your Board's action in the matter.

DIRECTORATE.

In accordance with the Company's Articles of Association, all the members of your Board retire from office, but, being eligible, they offer themselves for re-election. The retiring Directors are Messrs. W. H. Dawe, C. S. Goldmann, A. A. Auret, J. H. Ryan, A. G. Gill, E. A. Wallers, F. R. Lynch, H. J. King, E. J. Renaud and W. H. B. Frank.

AUDITORS.

The retiring Auditors, Mr. J. P. O'Reilly and Messrs. A. Aiken & Carter, being eligible, offer themselves for re-appointment. You will be asked to appoint Auditors for the current year, and to fix the remuneration for the past audit.

We are, Gentlemen,

Obediently yours,

A. G. GILL, Acting Chairman,
 R. GOULDAMM,
 E. J. RENAUD,
 J. H. RYAN,
 A. A. AURET,
 A. F. MULLINS,
 J. EMRYS EVANS,
 F. R. LYNCH,
 P. DREYFUS,
 J. MORISSE,

Directors.

Johannesburg,
 22nd August, 1916.

Consolidated Main Reef Mines and Estate, Limited.—Continued.

BALANCE SHEET, 30th JUNE, 1916.

Dr.	Cr.
To Capital—	
950,000 Shares of £1 sterling each £950,000 0 0	
25,636 Shares in reserve... ... 25,636 0 0	
	£924,364 0 0
924,364	
,, Funds Transferred from Appropriation Account—	
As per last Account 145,144 12 10	
Expenditure on Capital Account in excess of Working Capital provided 30th June, 1916 24,621 13 6	
	169,766 6 4
	1,094,130 6 4
,, Sundry Shareholders—	
Dividend No. 16, declared and unpaid 57,772 15 0	
Dividends Nos. 1 to 15 unpaid ... 6,784 19 4	
Share Fractions unpaid 246 19 7	
Debenture Interest unpaid... ... 6 2 3	
	64,810 16 2
,, Sundry Creditors, etc. 32,361 10 9	
,, Balance—	
Appropriation Account 77,854 1 10	
Contingent Liability on Shares—	
Witwatersrand Native Labour Association, Ltd.—623 shares at 8s 249 4 0	
Native Recruiting Corporation, Ltd.—Deposit of 10s. per native uncalled on complement of 3,126 natives 1,563 0 0	
Witwatersrand Co-operative Smelting Works, Ltd., 866 shares at 12s. 519 12 0	
Rand Mutual Assurance Co., Ltd.— 175 shares at £4... ... 700 0 0	
	£3,031 16 0
There are Contingent Liabilities on machinery contracts, etc., amounting to £9,332 19s. 9d. No provision has been made for the following:— Government Tax on Profits for the year ended 30th June, 1916. Special War Levy for period 1st April to 30th June, 1916. Income Tax for year ended 30th June, 1916.	
	£1,269,156 15 1
By Property—	
Freehold of Farm Paardekraal No. 42, Township of Maraisburg, Mynpachten, Mining Claims, Water Rights, etc., as per last account £495,520 0 0	
Less received for sale of Freehold Stands, Maraisburg Township... 425 0 0	
	£495,095 0 0
Buildings 65,571 17 8	
Machinery and Plant 301,781 9 1	
Shafts 50,728 11 10	
Shaft No. 3 (Deep Level) 165,376 9 7	
	216,105 1 5
Furniture 442 9 4	
Stable Equipment 143 2 6	
Dams and Surface Works 3,091 5 0	
	3,676 16 10
,, Investments—	
Witwatersrand Native Labour Association, Ltd.— 623 shares of £1 sterling each, 12s. paid up, and 25s. per share deposit 1,152 11 0	
Native Recruiting Corporation, Ltd.— 27 shares of £1 sterling each = £27, and deposit in respect of native complement, £1,563 ...	
Witwatersrand Co-operative Smelting Works, Ltd.— 866 shares of £1 sterling each, 8s. per share paid up 346 8 0	
Victoria Falls and Transvaal Power Company, Ltd.— 7,500 Preference Shares 7,500 0 0	
Rand Mutual Assurance Co., Ltd.— 175 shares of £10 sterling each, £6 per share paid up (at cost) 1,311 2 4	
	11,900 1 4
	1,094,130 6 4
,, Bearer Share Warrants 482 5 6	
,, Stores on Hand and in Transit ... 63,177 0 5	
,, Sundry Debtors—	
Including Native Labour Expenses, Gold Insurance and Sundry Payments in advance 25,848 14 0	
Main Reef East, Ltd., Shareholders unpaid calls 911 15 0	
Main Reef Deep, Ltd., Shareholders unpaid calls 911 15 0	
	91,331 9 11
	18,814 16 11
,, Gold Consignment Account	
,, Cash—	
Current Account, Johannesburg ... 19,236 11 7	
Deposit with Bankers 42,000 0 0	
Dividend Accounts, Share Fractions, and Debenture Interest Accounts, Johannesburg and London 2,499 5 10	
Current Account, London 358 12 7	
Cash at Mine 785 11 11	
	64,880 1 11
	£1,269,156 15 1

H. G. L. PANCHAUD, Secretary.

A. G. GILL, Acting Chairman.

A. F. MULLINS,

F. R. LYNCH,

Directors.

To the Shareholders,

Consolidated Main Reef Mines and Estates, Limited.

We have examined the above Balance Sheet with the Books and Vouchers of the Company, and have received all the information and explanations we have required. In our opinion the Balance Sheet is properly drawn up so as to exhibit a true and correct view of the state of the Company's affairs according to the best of our information and to the explanations given to us, and as shown by the Books of the Company.

J. P. O'REILLY,
Incorporated Accountant (Eng.).A. AIKEN & CARTER,
Auditors.

Johannesburg, 21st August, 1916.

Consolidated Main Reef Mines and Estate, Limited.—Continued.

REVENUE & EXPENDITURE ACCOUNT FOR THE YEAR ENDED 30th JUNE, 1916.

Dr.	Cr.
To Mining Expenses £114,408 9 7	
,, Hauling Expenses 28,879 18 3	
,, Mine Pumping 8,826 9 10	
,, Underground Tramming and Shoveling 25,959 10 11	
,, Development Expenses 48,682 14 5	
,, Underground Administration 13,747 17 9	
,, Surface Ore Transport, Crushing and Sorting 9,768 10 6	
,, Milling Expenses 21,824 8 10	
,, Cyaniding Expenses 23,111 13 4	
,, General Mine Charges 27,003 9 8	
	<u>£322,213 3 1</u>
,, Charges—	
Claim Licences and Farm Tax ... 5,458 5 0	
Salaries, Directors' and Consulting Engineer's Fees 6,700 0 0	
Cables, Telegrams, Postages, Stationery, Printing, Advertising, Legal Expenses, Exchange, Commission and General Charges... 2,190 10 3	
Profits Insurance 298 6 3	
London and Paris Office Expenses (including London Committee Fees) 1,490 0 0	
	<u>16,137 1 6</u>
,, Balance—	
Appropriation Account 162,931 1 1	
	<u>£501,281 5 8</u>

H. G. L. PANCHAUD, Secretary.

A. G. GILL, Acting Chairman.

J. P. O'REILLY,
Incorporated Accountant (Eng.).
A. AIKEN & CARTER,
Auditors.

A. F. MULLINS,
F. R. LYNCH,
Directors.

Johannesburg, 21st August, 1916.

APPROPRIATION ACCOUNT FOR THE YEAR ENDED 30th JUNE, 1916.

Dr.	Cr.
To Auditors' Fees—	
For year ended 30th June, 1915 £315 0 0	
,, Government Tax on Profits—	
For year ended 30th June, 1915 12,174 4 0	
,, Special War Levy—	
For period 1st April, 1915, to 31st March, 1916 6,469 10 9	
,, Expenditure on Capital Account—	
For Balance of Capital Expenditure to 30th June, 1916 24,621 13 6	
,, Dividend No. 15 of 6½ per cent. ... 57,772 15 0	
,, Dividend No. 16 of 6½ per cent. ... 57,772 15 0	
,, Directors' Extra Remuneration—	
In accordance with the Company's Articles of Association for the year ended 30th June, 1916 ... 1,700 0 0	
,, Estate Salaries Expenses, etc. ... 336 9 11	
,, French Fiscal Duties, 179 14 3	
,, Income Tax paid in London 229 5 0	
,, Income Tax paid in Johannesburg ... 341 19 3	
,, Contribution to Miners' Phthisis Compensation Fund 2,691 16 10	
,, Balance—	
To Balance Sheet 77,854 1 10	
	<u>£242,459 5 4</u>
By Balance—	
Brought forward from 30th June, 1915 £69,874 1 3	
,, Balance—	
From Revenue and Expenditure Account, being Profit on Working for the year ended 30th June, 1916 162,931 1 1	
,, Owners' Share of Claim Licences... 5,117 5 4	
,, Stand Licences, etc., Maraisburg Township 241 8 0	
,, Water Revenue 1,219 9 6	
,, Interest and Sundry Revenue 2,320 9 4	
,, Dividends—	
Received on Rand Mutual Assurance Co., Ltd., Shares £24 0 0	
Received on Victoria Falls and Transvaal Power Co., Ltd., Shares, to 31st December, 1915 665 12 6	
Received on Witwatersrand Cooperative Smelting Works, Limited, Shares... £16 10 3	
Refund on unappropriated balance of Profits 49 8 1	
	<u>65 18 4</u>
	<u>755 10 10</u>
	<u>£242,459 5 4</u>

H. G. L. PANCHAUD, Secretary.

A. G. GILL, Acting Chairman.

J. P. O'REILLY,
Incorporated Accountant (Eng.).
A. AIKEN & CARTER,
Auditors.

A. F. MULLINS,
F. R. LYNCH,
Directors.

Johannesburg, 21st August, 1916.

MAIN REEF WEST, LIMITED.

(Incorporated in the Transvaal.)

DIRECTORS' REPORT

For the Year ended 30th June, 1916.

Submitted to the Fifteenth Ordinary General Meeting of Shareholders, held in the Company's Board Room, Cullinan Building, Johannesburg, on Friday, the 24th November, 1916, at 11.30 a.m.

To the Shareholders,
MAIN REEF WEST, LIMITED.

Gentlemen,

Your Directors beg to submit their Report, together with the Reports of the Consulting Engineer and General Manager as also the Financial Statements for the year ended 30th June, 1916.

PROPERTY.

No change has taken place since the last General Meeting in your Company's property holdings, which comprise 564 claims, with an actual area of 549.6436 mining claims.

MINING OPERATIONS.

The Reports of the Consulting Engineer and the General Manager give full details of the work accomplished.

During the year 307,680 tons of ore were milled for a profit of £42,661, as compared with 269,520 tons during the previous year with a profit of £50,876. The working costs showed a decrease of 6.82d. per ton, whilst the yield decreased by 1s. 6.84d. per ton.

The payable ore reserves at 30th June, 1916, amounted to 386,960 tons, with an average assay value of 5.73 dwts. per ton over 50 inches, showing a decrease of 29,320 tons over the previous year, with a slight fall in value of .14 dwts.

DEBENTURE ISSUE.

As mentioned by your Chairman in his address at the last Annual Meeting of Shareholders the Debenture Holders, at a meeting held in September, 1915, agreed to postpone the annual redemption of Debentures for the years ended 30th September, 1915, 1916, and 1917. This has necessitated writing back in the Appropriation Account the sum of £18,750, the proportion set aside last year for this purpose for the period October, 1914, to June, 1915.

FINANCIAL.

The Appropriation Account may be summarised as follows:—
Balance brought forward from last year £24,710 19 0
Debenture redemption written back as explained above 18,750 0 0

Profits earned during year	43,460 19 0
Interest, Sundry Revenue and Dividends	42,661 17 3
	1,390 0 5
	<hr/>
	£87,512 16 8

From which have to be deducted:—	
Audit Fees for year ended June 30, 1915	£315 0 0
Profits Tax for year ended June 30, 1915	875 0 0
Special War Levy for period April 1, 1915, to March 31, 1916	464 19 9
Capital Expenditure over and above the balance of funds available at June 30, 1915	22,535 6 11
Debenture Interest	15,000 0 0
Debenture Expenses	394 14 10
Contribution to Miners' Phthisis Compensation Fund	2,030 4 3
Income Tax paid in England	33 4 7
	<hr/>
Leaving a balance to be carried forward of ...	£45,864 6 4

CAPITAL EXPENDITURE.

The following items of Capital Expenditure have been incurred during the year:—	
Machinery and Plant	£783 6 1
Shafts	20,813 13 10
Fencing and General Surface Improvements	506 10 6
Sundry increases in Shareholdings	668 4 0
	<hr/>
	£22,771 14 5

Of this amount the sum of £236 7s. 6d. was provided from the funds raised by the Debenture Issue, thereby exhausting them, whilst the balance of £22,535 6s. 11d. has been appropriated out of the year's profits.

EMPLOYEES ON ACTIVE SERVICE.

Twenty-six of the Company's employees are on Active Service with the forces in German East Africa and in Europe.

DIRECTORATE.

Your Directors have to record with deepest regret the sad death of their colleague, Major C. H. Mullins, V.C., C. M. G., who had been closely associated with your Company during the past eight years.

You will be asked to confirm the appointment of Mr. A. F. Mullins as a Director of the Company in the place of the late Major Mullins.

In accordance with the Company's Articles of Association, all the members of your Board retire from office, but, being eligible, they offer themselves for re-election.

The retiring Directors are Messrs. W. H. Dawe, C. S. Goldmann, E. A. Wallers, J. Munro, H. J. King, W. P. Fisher, A. G. Gill and A. F. Mullins.

AUDITORS.

The retiring Auditors, Mr. H. Hains and Messrs. Fraser & Mackenzie, being eligible, offer themselves for re-appointment. You will be asked to appoint Auditors for the current year and to fix the remuneration for the past audit.

We are, Gentlemen,

Obediently yours,

A. G. GILL, Acting Chairman.
R. GOLDMANN,
P. RICHARDSON,
A. P. EICHTER,
W. P. FISHER,
A. F. MULLINS,
P. DREYFUS,
W. H. B. FRANK,

Directors.

Johannesburg,
30th September, 1916.

Main Reef West, Limited.—Continued.

BALANCE SHEET, 30th JUNE, 1916.

Dr.	Cr.
To Capital—	
491,188 shares of £1 sterling each, fully paid ... £491,188 0 0	
.. Share Premium—	
As per last account 85,000 0 0	
.. Six per cent. Mortgage Debentures (less amount due on 3rd and 4th instalments £37)—	
As per last account £231,213 0 0	
Add Amount deducted as per last Account for Debentures redeemable for period 1st October, 1914, to 30th June, 1915, re- demption since deferred ...	18,750 0 0
	<u>249,963 0 0</u>
. Funds transferred from Appropria- tion Account—	
As per last account 154,764 15 9	
Less amount included for re- demption of Debentures as above 18,750 0 0	
	<u>136,014 15 9</u>
To Expenditure on Capital Ac- count in excess of working capital provided to 30th June, 1916 22,535 6 11	
	<u>158,550 2 8</u>
	984,701 2 8
Sundry Shareholders—	
Dividends Nos. 1, 2, 5, 6, 7 unpaid 28 18 1	
Debenture Interest Accrued and Unpaid 4,014 4 2	
Sundry Creditors, etc.—	
On Current Account 21,686 12 3	
.. Balance—	
Appropriation Account 45,864 6 1	
Contingent Liability on Shares—	
Witwatersrand Native Labour Association, Ltd.: 561 shares at 8s. per share £224 8 0	
Witwatersrand Co-operative Smelt- ing Works, Ltd.: 771 shares at 12s. per share 462 12 0	
Rand Mutual Assurance Co., Ltd.: 80 shares at £4 per share	
Native Recruiting Corporation, Ltd.: Deposit of 10s. per native uncalled on complement of 3,070 natives 320 0 0	
	<u>1,535 0 0</u>
	<u>£2,542 0 0</u>
There are Contingent Liabilities on machinery contracts amounting to £1,927 11s. 7d.	
No provision has been made for the following:—	
Government Tax on Profits for year ended 30th June, 1916.	
Special War Levy for period 1st April to 30th June, 1916.	
Income Tax for the year ended 30th June, 1916.	
	<u>£1,056,295 3 6</u>
By Property—	
Mining Claims as per last account £395,525 12 11	
.. Buildings 141,773 2 11	
.. Machinery and Plant 221,613 14 0	
	<u>263,386 16 11</u>
.. Shafts—	
East Shaft No. 4 127,441 17 9	
West Shaft No. 5 118,503 16 7	
	<u>245,945 14 4</u>
.. Mine Development 66,412 1 8	
.. Fencing and General Surface Im- provements 1,960 16 3	
.. Furniture 580 15 7	
	<u>2,541 11 10</u>
.. Investments—	
Witwatersrand Native Labour As- sociation, Ltd.: 561 shares, 12s. paid up and 25s. per share deposit 1,037 17 0	
Witwatersrand Co-operative Smelt- ing Works, Ltd.: 771 shares, 8s. per share paid up 308 8 0	
Rand Mutual Assurance Co., Ltd.: 80 shares of £10 sterling each, £6 per share paid up 180 0 0	
Victoria Falls and Transvaal Power Co., Ltd.: 7,500 Pref- erence Shares 7,500 0 0	
Native Recruiting Corporation, Ltd.: 28 shares of £1—£28, and deposit in respect of native complement, £1,535 1,535 0 0	
	<u>10,889 5 0</u>
	<u>£984,701 2 8</u>
.. Sundry Debtors, Payments in Advance, etc. 4,657 11 7	
.. Bearer Share Warrants 71 18 0	
.. Gold Consignment Account 11,577 8 7	
.. Cash—	
Current Account, Johannesburg 8,779 4 11	
Deposit with Bankers 45,000 0 0	
Dividend and Debenture Accounts, Johannesburg and London 443 15 7	
Current Account, London 190 4 10	
Cash at Mine 873 17 4	
	<u>55,287 2 8</u>
A. G. GILL, Acting Chairman.	
A. F. MULLINS,	
P. RICHARDSON,	
Directors.	

To the Shareholders,

MAIN REEF WEST, LIMITED.

We have examined the above Balance Sheet with the Books and Vouchers of the Company, and have received all the information and explanations we have required. In our opinion the Balance Sheet is properly drawn up, so as to exhibit a true and correct view of the state of the Company's affairs, according to the best of our information and to the explanations given to us, and as shown by the Books of the Company.

H. HAINS,

Incorporated Accountant, Eng.

FRASER & MACKENZIE,

Auditors.

Johannesburg, 23rd August, 1916.

Main Reef West, Limited.—Continued.

REVENUE & EXPENDITURE ACCOUNT FOR THE YEAR ENDED 30th JUNE, 1916.

Dr.	Cr.
To Mining Expenses £98,816 11 1	
.. Development Expenses 35,457 17 10	
.. Milling Expenses 24,193 2 8	
.. Cyaniding Expenses 20,804 14 9	
.. Hauling Expenses 32,388 4 4	
.. Mine Pumping 5,888 12 5	
.. Underground Tramming and Shovelling 28,222 19 8	
.. Underground Administration 9,964 10 2	
.. Surface Ore Transport, Crushing and Sorting 6,473 10 5	
.. General Mine Charges 24,905 16 6	
	<u>£287,115 19 10</u>
.. Charges—	
Claim Licences 3,228 15 0	
Salaries, Directors' and Consulting Engineer's Fees 1,600 0 0	
Cables, Telegrams, Postages, Stationery, Printing, Advertising, Legal Expenses, General Charges, and Exchange and Commission 1,173 3 3	
Profits Insurance 120 8 3	
London Office Expenses (including London Committee Fees) 772 3 4	
	<u>9,894 9 10</u>
.. Balance—	
Appropriation Account 42,661 17 3	
	<u>£339,672 6 11</u>
	<u>£339,672 6 11</u>

H. G. L. PANCHAUD, Secretary.

A. G. GILL, Acting Chairman.

A. F. MULLINS,
P. RICHARDSON,

Directors.

H. HAINS,
Incorporated Accountant, Eng.,
FRASER & MACKENZIE,
Auditors.

Johannesburg, 23rd August, 1916.

APPROPRIATION ACCOUNT FOR THE YEAR ENDED 30th JUNE, 1916.

Dr.	Cr.
To Auditors' Fees—	
For year ended 30th June, 1915 £315 0 0	
.. Government Tax on Profits—	
For year ended 30th June, 1915 875 0 0	
.. Special War Levy—	
For period 1st April, 1915, to 31st March, 1916 64 19 9	
.. Expenditure on Capital Account—	
For Balance of Capital Expenditure to 30th June, 1916 22,535 6 11	
.. Debenture Interest £15,000 0 0	
.. Debenture Trustees' Fees 200 0 0	
.. Debenture Expenses 194 14 10	
	<u>15,394 14 10</u>
.. Contribution to Miners' Phthisis Compensation Fund 2,030 4 3	
.. Income Tax—	
Paid in London 33 4 7	
.. Balance—	
To Balance Sheet 45,864 6 4	
	<u>£87,512 16 8</u>
By Balance—	
Brought forward from 30th June, 1915 £24,710 19 0	
.. Debenture Redemption set aside from 1st October, 1914, to 30th June, 1915, now written back ... 18,750 0 0	
.. Balance—	
From Revenue and Expenditure Account, being Profit on working for year ended 30th June, 1916	
.. Interest and Sundry Revenue 42,661 17 3	
.. Dividends—	
Received on Victoria Falls and Transvaal Power Co., Ltd., Preference Shares to 31st December, 1915 665 12 6	
Received on Rand Mutual Assurance Co., Ltd.—Shares £16, Interest in Reserve Fund £8 4s. 24 4 0	
Received on Witwatersrand Co-operative Smelting Works, Ltd., Shares £16 0 8	
Refund of Unappropriated Balance of Profits 49 8 1	
	<u>65 8 9</u>
	<u>755 5 3</u>
	<u>£87,512 16 8</u>

H. G. L. PANCHAUD, Secretary.

A. G. GILL, Acting Chairman.

A. F. MULLINS,
P. RICHARDSON,

Directors.

H. HAINS,
Incorporated Accountant, Eng.,
FRASER & MACKENZIE,
Auditors.

Johannesburg, 23rd August, 1916.

I.D. ESTABLISHED 1864. I.D.
THE LEADING FINANCIAL DAILY OF THE WORLD.

The Financial News

THE FINANCIAL NEWS has the largest circulation of any financial newspaper in the World.

ALL THE NEWS OF ALL THE MARKETS.

Items of Important Exclusive Information
are given Every Day.

THE LATEST MARKET MOVEMENTS.

All the prices recorded on the

London Stock Exchange.

Up-to-date in all Financial Matters.
Most News. Exclusive Articles.

ANSWERS TO CORRESPONDENTS

Appear Daily, with the names of the Shares about
which the inquiry is made.

ON SALE EVERYWHERE.

Publishing, Advertisement and Editorial Offices :
111, QUEEN VICTORIA STREET, LONDON, E.C.

Branch Offices : (New York, 20, Broad Street.
Paris, 36, bis Boulevard Haussmann.)
TELEGRAMS—Finews, Cent. London TELEPHONES—6830 City
(counts 2 words).

PUBLISHED DAILY IN FRENCH IN PARIS.



DICK'S BELTING.

No Belt is a

DICK'S ORIGINAL BALATA

unless stamped every few feet
with the Trade Mark.

FACTORIES: GLASGOW, SCOTLAND.
PASSAIC, NEW JERSEY, U.S.A.

SOLE AGENT—

S. P. Ruthven,
3, WINCHESTER HOUSE,
JOHANNESBURG.
PHONE BO.
TELEGRAMS: "BELTINO."

PLEASE NOTE.

We are the Largest Buyers of
SCRAP RUBBER

In South Africa.

Enquiries solicited to our Johannesburg Buyers—

JOHANNESBURG VULCANIZING WORKS,
C/o Loveday & Anderson Streets, Johannesburg.

Box 3912, Johannesburg.

Or direct to us—

CAPE RUBBER WORKS,
65, Shortmarket Street, CAPE TOWN.

Box 785, Cape Town.

When communicating with Advertisers

kindly mention the

South African Mining Journal

EXPLOSIVES

For Mining, Quarrying, Farming, Railway and Irrigation Work.
"Permitted" Explosives for Coal Mines.

AGENTS:

LONDON.—CAPE EXPLOSIVES WORKS LTD., 15, St. Swithin's Lane, E.C.

TRANSVAAL.—REUNERT & LENZ, LTD Box 92, Johannesburg.

RHODESIA.—L. R. FORBES, Box 683, Bulawayo, and Box 427, Salisbury.

KIMBERLEY.—CAPE EXPLOSIVES WORKS LTD., & E. W. TARRY & CO., LTD.

AUSTRALASIA.—KIRK O'BRIEN, Collins House, Collins Street, MELBOURNE.

MANUFACTURERS of

Blasting Gelatin, Gelignite.
Ligdyn Dynamites.
"Cape Brand" Subsoil Dynamite
Fuse Igniters.

Bi-Sulphate of Soda.
Sulphuric and Nitric Acids.
Sulphur & Sulphur Lime Solution
Pure Glycerine.

Fuse, Detonators and Electric Blasting Accessories Stocked.
Nitrate of Soda.

CAPE EXPLOSIVES WORKS
LIMITED,
P.O. DYNAMITE FACTORY,
SOMERSET WEST, CAPE PROVINCE.

FOURTEEN BUTTERS' FILTER PLANTS

AND FOUR EXTENSIONS TO FORMER PLANTS

now operating on the Rand and giving complete satisfaction to everyone concerned.

Full particulars and operating data will be given on application.

50 lb. samples of slime will be tested free of charge to determine its filtering capacity. Estimates for plants, accompanied by complete general arrangement drawing, supplied on short notice. Write us for pamphlet regarding our process.

CHAS. BUTTERS & CO., LTD.

INCORPORATED IN ENGLAND

187, Exploration Building, Johannesburg.

P.O. Box 2652.

Telephone 3701.

Cable Address: "HUBNERITE."

FRASER & CHALMERS, LTD., AGENTS FOR SOUTH AFRICA.



ROYAL MAIL STEAMERS sail homewards from Durban at daybreak every Sunday, and from Capetown at 1 p.m. every Saturday, calling at Madeira.

MAURITIUS AND REUNION SERVICE.—Sailings at stated intervals.

THROUGH BOOKINGS are arranged to America and Continental ports.

OUTWARD PASSAGES of friends in the United

Union Castle Line.

Sailings between SOUTH AFRICA and the UNITED KINGDOM by the Western Route, and by the Eastern Route (via Suez).

Kingdom and the Continents of Europe and America, may be prepaid in South Africa.

COMBINED LAND AND SEA TOURS.—In conjunction with the Railway Administrations in South Africa, the Company issues Combined Rail and Steamer Tickets for Circular Tours at REDUCED FARES. Tickets are available for six months, and the journey may be broken at any point.

For full particulars of Freight and Passage Money apply to the Agencies of the

UNION-CASTLE MAIL STEAMSHIP COMPANY, LTD.

AT CAPETOWN, PORT ELIZABETH, EAST LONDON, DURBAN, LOURENCO MARQUES, BEIRA AND JOHANNESBURG,
OR TO THE SUB-AGENTS IN THE PRINCIPAL TOWNS.

Ingersoll-Rand
Co.,
Exploration Bldg.,
JOHANNESBURG.

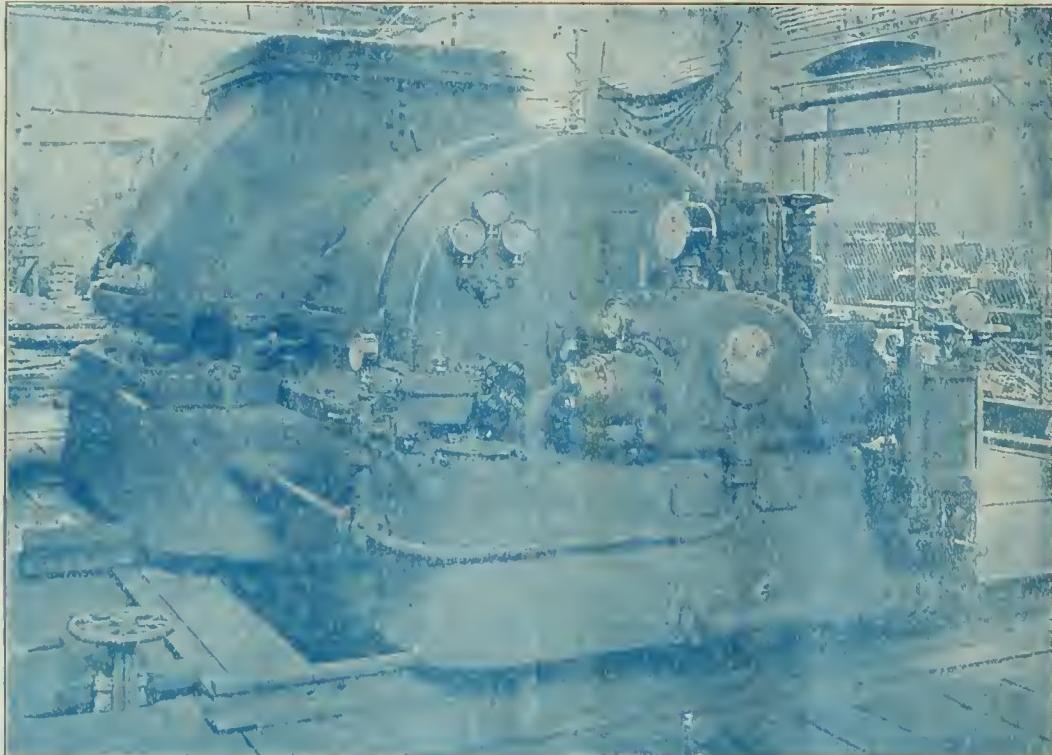
THE
South African
MINING JOURNAL
WITH WHICH IS INCORPORATED
"The South African Mines, Commerce & Industries"
ESTABLISHED 1891
PUBLISHED EVERY SATURDAY

Ingersoll-Rand
Co.,
Exploration Bldg.,
JOHANNESBURG.

VOL. XXVI., PART I. No. 1814. THE SOUTH AFRICAN MINING JOURNAL. DEC. 2, 1916. [WEEKLY, PRICE 6D.]

W. L. SAUNDERS, Chairman of Board. GEORGE DOUBLEDAY, President.
W. R. GRACE, V.P. and Treas. F. A. BRAINERD, Secy. J. H. JOWETT, Gen. Sales Mngr.

TURBO COMPRESSORS AND BLOWERS.



EFFICIENCY. RELIABILITY. DURABILITY.
Sizes: 3.000 to 55.000 cu. ft.

INGERSOLL-RAND CO.
Exploration Buildings. Johannesburg.